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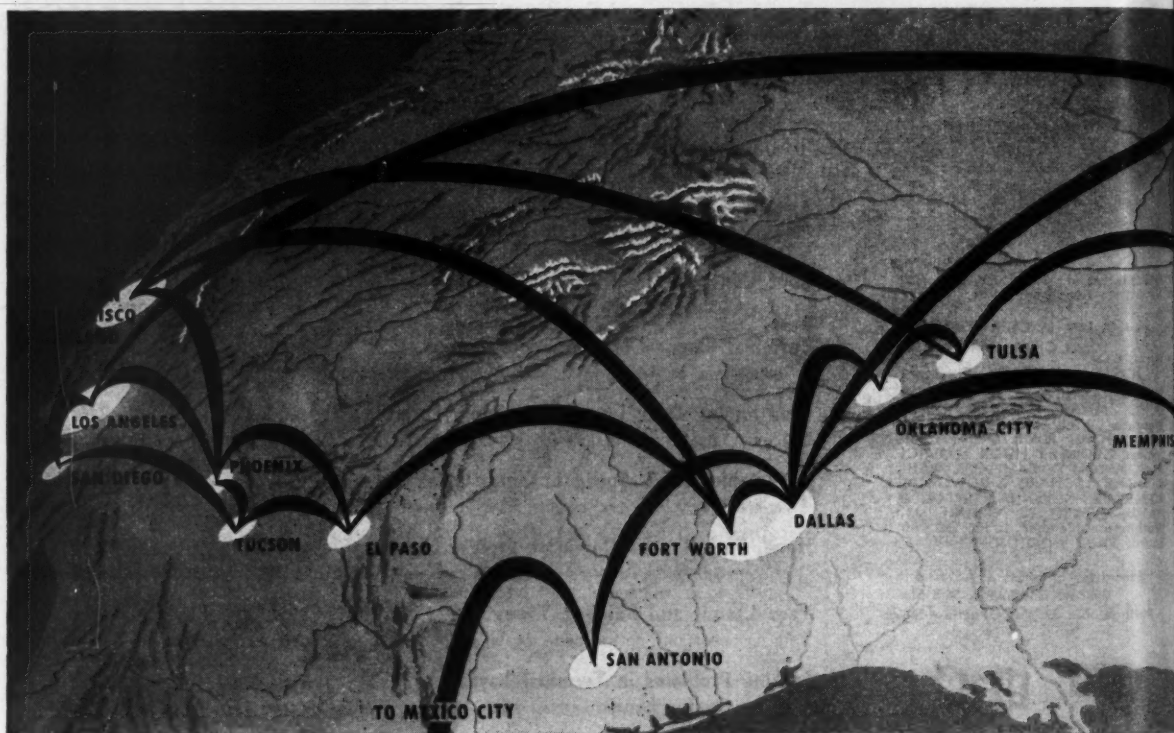
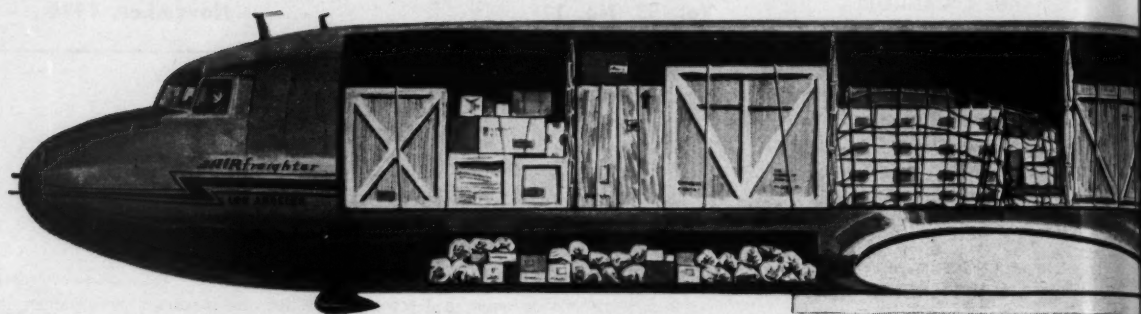
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We've got the right **SPACE**

*American Airlines has the greatest capacity in the
—more planes carrying freight to more places*



Capacity, of course, is one measure of a carrier's ability to deliver the goods. That's why it's important for you to know American Airlines has the greatest cargo capacity in the airfreight field.

But, equally important, when it comes to specifying a carrier, is the availability of that space—having it where and when it can best

serve you. Here again, American leads all others.

• While providing fast and frequent service to seventy-seven key cities throughout the Country, *only American serves two-thirds of the top thirty retail markets—all twenty-three of the leading industrial states.*

Add this to American's superiority in expe-

On the Line—



We Honor Warren Brown

WE PAUSE to honor a truly great railroad executive—Warren W. Brown, president, the Monon Railway.

His successful career, alone, entitles him to distinction. But in his address before the Buffalo Traffic Club, on the night of October 20, he exhibited the fullness of his courage, wisdom and business acumen. His deeply searching remarks comprised an analysis, a warning, remedy and challenge to all railroad men.

At first, he startled his Buffalo audience by acknowledging such well-known truths as that the railroad industry "is not performing adequate transportation service, has not done so for some time, and I do not see much hope that it will do any better in the future."

As proof that he has all the facts, Mr. Brown dared to cite such irrefutable examples as "hundred-mile less-than-carload shipments take five days in transit . . ."

As his talk advanced, he grew in stature in the eyes of his awed and admiring audience. When he concluded, he had endeared himself to his listeners because what he said actually voiced their experience and innermost thoughts.

Even when referring to other forms of transportation, Mr. Brown's remarks were honest, kind and wise. Only a "small, rapidly diminishing segment of American railroading," he said, looks upon truckers and airlines as "interlopers who have stolen, through subsidy and comparatively easier regulation, the business which they think rightfully belongs to the railroads."

With dramatic finality, he declared, "Nothing could be more emotional and nothing could be more removed from the truth."

Then he laid the answer right on the line. Those truckers and airlines took business from the rails, he said, by the "simple American expedient of doing a better job . . ."

Amen. So mote it be.

Coincidentally, the nation is observing the Diamond Jubilee of Light. Mr. Brown has contributed eloquently.

He has performed an outstanding service for the railroads, for which he unquestionably earned a niche in the railroad hall of fame. Moreover, he will win the grateful appreciation of all working unselfishly to further the natural advantages of each mode of transportation, that our country may grow stronger and more prosperous.

We need railroads—we cannot envision a time when we might do without them. But right now we are desperately in need of good railroading. Our hopes and future are in the hands of men like Warren W. Brown.

Yakkety Yak

One railroad freight solicitor said, "Page Diogenes!"

. . . Traffic Manager: "Now I know how honest a railroad man can be."

THE FUTURE? We'll never get good railroading, as a whole, until the rails themselves get rid of that cancerous core of selfish die-hards

. . . to whom Mr. Brown probably refers

. . . who pour moneys into witches cauldrons for poisonous propaganda potions to vilify and undermine competition

. . . the Communist way
. . . rather than for research, new equipment and better service
. . . the American way.

BRAINWASHING: Letters and other data on our desk seem to indicate that the eastern railroad storm-troopers, under Field Marshal Carl Byoir, have subsidized a college course on railroad taxation and
. . . trucker condemnation.

SERVICE? One eastern railroad petitioned the Public Utility Commission to discontinue 56 trains; another asks to cut 19.

. . . Can you imagine any other business operating that way?

. . . Well, look at the carloadings on Page 56.

H. V. Greene

Editor



One of 31 Magcoa Dockboards in service on American Maize-Products Co. rail and truck docks, Roby, Indiana

"Our cost records show a savings of \$2500 a year...with Magcoa Dockboards"

SAYS JAMES McCABE, CHIEF INDUSTRIAL ENGINEER, AMERICAN MAIZE-PRODUCTS CO.

"Cost records for our 31 Magcoa Dockboards, used on both truck docks and rail docks," says Mr. McCabe, "show a measurable savings of more than \$2500 a year in labor, truck and tire maintenance—plus an immeasurable employee relations benefit because our Magcoa Dockboards are safe and save strain. They actually paid for themselves in their first three years of service."

"Before standardizing on Magcoa Dockboards," says Mr. McCabe, "we tried all types—both heavy-metal and another type of light-metal, 'homemade' and specially made. Then we chose Magcoa Dockboards because they're light and easy to use, and yet hold up under constant hard wear."

A suggestion: Ask for a copy of our new Facts File that shows how Magcoa Light-Weight Heavy-Duty Magnesium Dockboards can save money and speed handling for your company. Use the handy coupon.



James McCabe, Chief Industrial Engineer, American Maize-Products Co., a cost-reduction, warehousing and palletizing expert; a frequent speaker and author of many articles on materials handling.

MAGNESIUM COMPANY OF AMERICA

MATERIALS HANDLING DIV., EAST CHICAGO 3, IND. — Representatives in Principal Cities

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(Los Angeles)
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☐ Please send me the free new Dockboard Facts File

Name & Title _____

Company _____

Address _____

City-Zone-State _____

Circle No. 5 on Card, facing Page 49, for more information

LETTERS TO THE EDITOR

To The Editor:

We have a public warehouse loss that is causing us considerable concern. For a number of years we have carried field warehouse stocks of our merchandise with various warehouses throughout the country. Up until a few weeks ago we had a stock stored with a firm in Charlotte, N. C. On changing brokers recently in that area we were requested to remove the stock, in doing so we found it seriously water damaged—many of the cartons were totally destroyed, as well as the labels and a large portion of the cans were in a rusted and damaged condition.

In receiving this merchandise at another warehouse they failed to make a notation on the delivery sheets that this merchandise was in damaged condition. Following is a paragraph from an April 14 letter from the original warehouse denying all responsibilities:

"We have received your letter of April 8, 1954, relative to the merchandise which was stored in this warehouse and recently transferred to M— Storage and Distributing Co. We wish to assure you that if the stock is in bad condition due to water damage and rust that it definitely did not happen in this warehouse. Furthermore, it seems to us that if any of these cases had been wet, it would have been impossible to handle them for delivery. Furthermore, we find that this merchandise was delivered to M— Storage on a clear Bill of Lading, as you have no doubt seen from the originals which have been mailed to you, with no exceptions other than samples removed from the cases on your last visit here."

After exchanging a number of letters with this firm regarding this claim, their denial of the loss is still basically the same. The total damage was \$894.03, we wrote them May 21, to which we have had no reply.

Ashley Nixon
President

Plain Foods, Inc.
Plainview (West), Texas

You can recover a money judgment equal to the damages to the goods if you prove, first, that the goods were in damaged condition when removed from the C— Warehouse Co. and, second, the testimony shows that the damage resulted from negligence on the part of the warehouse company. Quite obviously, the warehouse company could not be held responsible unless proof shows that the goods were damaged while in this warehouse. If the goods were damaged by Act of God, as unusual flood, rain or the like, the warehouse company is not liable.—Leo T. Parker, DA Legal Consultant.

Chuting the NEWS

Coming Events

- Nov. 8—National Assn. of Railroad & Utilities Commissioners, Annual Convention, Chicago, Ill.
- Nov. 8-10—Central Western Shippers Advisory Board, Lincoln, Neb.
- Nov. 9-11—3rd Canadian National Packaging Exposition, CNE Automotive Bldg., Toronto, Can.
- Nov. 10-12—18th National Time & Motion Study & Management Clinic, Hotel Sherman, Chicago, Ill.
- Nov. 14-20—National Truck Transportation Week.
- Nov. 18—Railway Business Assn., 46th Annual Dinner, New York, N. Y.
- Nov. 18-19—National Industrial Traffic League Convention, Statler Hotel, New York, N. Y.
- Nov. 18-19—Association of American Railroads, Annual Meeting, New York, N. Y.
- Nov. 18-20—United Van Lines, Inc., Hotel Chase, St. Louis, Mo.
- Nov. 19-20—Atlas Van Lines, Inc., Annual Meeting, Edgewater Beach Hotel, Chicago, Ill.
- Nov. 21-22—Automatic Control Equipment Exposition, Waldorf-Astoria Hotel, New York, N. Y.
- Nov. 29-Dec. 6—1st International Automation Exposition, 242nd Coast Artillery Armory, New York, N. Y.
- Dec. 8-9—Michigan Movers' & Warehousemen's Assn., Detroit, Mich.
- Dec. 14-15—Material Handling Institute, Annual Meeting, Hotel Statler, New York, N. Y.

1955

- Jan. 7-11—National Retail Industry Show, Madison Square Garden, New York, N. Y.
- Jan. 10-13—Refrigerated Warehousing Management Training Conference, Edgewater Beach Hotel, Chicago, Ill.
- Jan. 20-21—Private Truck Council of America, Annual Convention, Hotel Statler, New York, N. Y.
- Jan. 26-31—Truck-Trailer Manufacturers Assn., Annual Convention, Boca Raton Hotel, Boca Raton, Fla.
- Mar. 13-19—National Furniture Warehousemen's Assn., Boca Raton Hotel, Boca Raton, Fla.
- Mar. 22-25—Movers & Warehousemen's Assn. of America, Inc., 20th Annual Convention, Statler Hotel, Los Angeles, Cal.
- Apr. 12-16—American Warehousemen's Assn., Annual Meeting, Cleveland, Ohio.
- May 16-20—6th National Materials Handling Exposition, International Amphitheater, Chicago, Ill.

ATC Elects New Officers



Officers of the Associated Traffic Clubs of America, elected at the annual meeting of the organization in Louisville, Ky., constitute this group. Left to right, seated: L. A. Pomeroy, Jr., traffic manager of the National Malleable & Steel Castings Co., Cleveland, O., president; Frank L. O'Neill, general traffic manager of the Minnesota Mining & Mfg. Co., St. Paul, Minn., executive vice-president. Standing: T. C. Burwell, vice-president of the A. E. Staley Mfg. Co., Decatur, Ill., chairman of the board of directors; Raymond P. DeGroote, general western freight agent of the Lukenbach Steamship Co., Chicago, secretary, and R. Paul Yellen, general agent of the Norfolk & Western at St. Louis, Mo., treasurer and assistant secretary.

Retiring ATC President Urges 'Action and Mutual Interest' via Grass Roots Program

Facing what he called some unpleasant truths, E. George Siedle, retiring president of the Associated Traffic Clubs of America, last month, called for action and mutual interest to overcome lack of understanding and depreciated interest.

Siedle, who recently retired as general traffic manager of Armstrong Cork Co. to become assistant postmaster general, spoke of a grass roots program for active participation by individuals at the 31st Annual meeting, in Louisville.

A similar recommendation was made in the annual Board of Directors' report, presented by T. C. Burwell, chairman of the Board.

Burwell said the Board suggests "a free exchange of views between association and member units."

More than 1,000 delegates and visitors, representing 131 member groups, attended the meeting. Speakers included: Brigadier General F. S. Besson, Jr., ATTC, Fort Eustis, Va.; H. C. McClellan, president, Old Colony Paint Co., Los Angeles, Cal.; Robert J. Bayer, president of ASTT; Hunter Holding, vice president, Equitable Life Assurance Society; E. F. Ryan, president, Rail-Trailer Co., Chicago, and Hugh Meglone Milton II, assistant secretary of the Army.

(Please Turn Page)

Chuting the News . . .

(Continued from Preceding Page)

Witnesses from 22 National Organizations Present Views on President's Highway Plan

Public hearings on President Eisenhower's proposal for an expanded highway program were conducted last month as the Clay Committee received testimony from 22 interested groups. A list of organizations reporting and their cap-suled opinions follow:

Automobile Mfg. Assn., in favor, with emphasis on research; Grange, non-committal, but doubtful; Farm Bureau Federation, doubtful support; U. S. Chamber of Commerce, study being made, but not completed; Independent Advisory Committee to the Trucking Industry, general approval.

U. S. Conference of Mayors, for improvement, but wants cities included; National Parking Assn., full approval; American Road Builders Assn., suggests exhaustive study of revenue angle; Automotive Safety Foundation, calls plan justifiable; National Assn. of County Officials, fears counties will be unable to participate; AAA, reserves opinion until after annual

meeting scheduled for October 25.

Associated General Contractors, calls plan realistic; ATA, favors plan with modifications; National Assn. of Motor Bus Operators, suggests realigning of Federal aid; American Petroleum Institute, questions the need for a \$101 billion expenditure; AASHO, wants interstate system 100 per cent Federally financed, with state construction and supervision.

Private Truck Council of America, questions \$101 billion expenditure; Association of American Railroads, thinks highways should be self-supporting; Truck-Trailer Mfg. Assn., favors improvement with realistic view of finances; American Municipal Assn., wants emphasis on city improvements; National Assn. of Township Officials, wants execution of program entirely by state and local forces; American Toll Ways Authority, envisions great highway network built and maintained by state toll road commissions.

—DA—

MHI Annual Meeting

The Annual Meeting of the Material Handling Institute has been scheduled for Dec. 14-15 at the Statler Hotel, New York, N. Y. The director's meeting will be convened on Dec. 14, with the general membership meeting the following day.

—DA—

WASHO Conference

A resolution calling for use of the present 2 cent Federal gasoline tax to service the issuance of government securities to pay for the building of the interstate system of roads, and to accelerate improvement of other Federal-aid highways was adopted by the Western Association of State Highway Officials at its 33rd annual conference in Sun Valley, Idaho, last month.

Transportation Award

L. B. DeLong, of New York and Seattle, was presented with the National Transportation Award at the annual banquet of the National Defense Transportation Association, in Pittsburgh, Pa., Oct. 26. The presentation was a feature of a three-day NDTA meeting which brought together transportation leaders from the armed forces, government, and industry to discuss transportation mobilization problems.

—DA—

IMATA-TAG Merger

It has been announced by the Independent Military Air Transport Assn. and the Transportation Air Group, Inc., that negotiations are being concluded to merge activities of the two associations, effective Nov. 1.

Siedle Takes Office



E. George Siedle (left) receives congratulations and his commission as assistant postmaster general from Postmaster General Arthur E. Summerfield just after he was sworn in at ceremonies in Washington, D. C.

Governor of Colorado Addresses ATA Group

Gov. Dan Thornton, of Colorado, addressed the annual convention of American Trucking Associations, Inc., at a luncheon meeting Oct. 28, in New York.

Other speakers at the convention, held Oct. 22-29, were Clem Johnston, president of the U. S. Chamber of Commerce; Herbert W. Voorhees, president of the New Jersey Farm Bureau, and Calvin Dean Johnson, ATA consultant on public affairs and former member of Congress from Illinois.

The convention opened Oct. 22, with a meeting of managers of state trucking associations affiliated with ATA. The executive committee met Sunday and the convention ended Friday afternoon after the annual election of officers.

—DA—

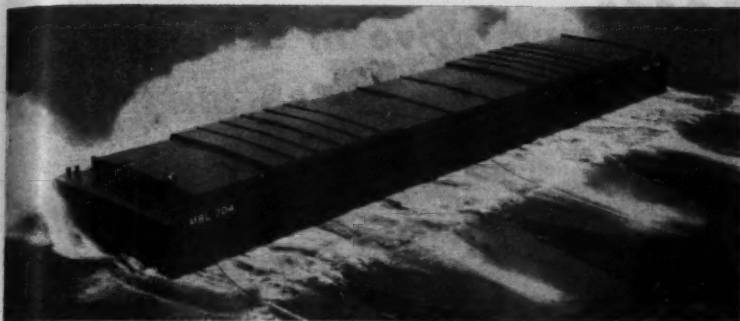
The Turlock Refrigerating Co., Turlock, Calif., recently applied for membership in the NARW.

—DA—

Trailer Pool Formed

A plan to give the nation's shippers better and more economical truck service has been announced by a group of mid-continent truck operators who have organized a national trailer pool. Operations of the multi-million dollar corporation, National Trailer Pool, Inc., are scheduled to begin Nov. 1.

The Big Splash



Additional cargo capacity and towing efficiency are expected from six new, welded-steel barges just completed by Dravo Corp. Each barge is 195 ft long by 35 ft wide by 11 ft deep, and is equipped with weathertight rolling hatch covers. Square end design increases cargo capacity 15 per cent

National Assn. of Shippers Advisory Boards Elects Denk President; Adopts LCL Resolution

C. L. Denk, Jr., of Atlanta, Ga., general traffic manager of the Fulton Bag & Cotton Mills, was elected president of the National Association of Shippers Advisory Boards at the annual meeting in Louisville, Ky., last month.

A resolution was adopted which suggests, "in conformity with the NASAB, cooperation with the railroads in that the 13 NASAB boards and the National Small Shipments Traffic Conference should cooperate with each other in a program which will have for its purpose the orderly return of lcl traffic to the rail lines."

Named vice presidents were: J. W. Witherspoon, assistant gen-

eral traffic manager of the United States Rubber Co., and T. Chase Burwell, vice president of the A. E. Staley Mfg. Co. H. E. Bingham, director of traffic of the Spencer Chemical Co., was elected secretary.

National transportation problems, particularly those arising from this year's lower level of freight traffic, were discussed. Presiding over the meeting was John N. Lind, of Pittsburgh, retiring president and general traffic manager of the National Supply Co. Principal speaker was William T. Faricy, of Washington, D. C., president of the Association of American Railroads.

—DA—

—DA—

ASTT Annual Meeting

The American Society of Traffic and Transportation, Inc., conducted its Annual Meeting Oct. 29 in Washington. President Robert J. Bayer presided. Speakers included:

ICC Commissioner Howard G. Freas, on "Building a Better Transportation Profession"; Dr. Arthur S. Flemming, director, office of Defense Mobilization, on "Transportation and the Defense Mobilization Program," and Richard L. Bowditch, chairman of the board, U. S. Chamber of Commerce, on "Transportation in an Atomic Age."

Anthony F. Arpaia, ICC commissioner, will speak at an Area Transportation Conference in Hartford, Conn., Nov. 5.

—DA—

Port Convention

New cooperative steps to keep ocean commerce flowing among free world nations were discussed on an international basis Oct. 25-29 at the 43rd Annual Convention of the American Association of Port Authorities, in San Francisco, Calif.

MEN IN THE NEWS

Materials Handling

John Schippers — named Chicago branch manager of the Colson Corp., Elyria, O.



C. F. Rogers, appointed general sales manager, American Tractor Corp., Fort Wayne, Ind.

Packing and Packaging

John H. Fetting — appointed plant manager, Thames River Div., Robert Gair Co., Inc., Uncasville, Conn.

Traffic

Rudolph O. Erickson — named district traffic manager, Anaconda Copper Mining Co., Butte, Mont.

L. E. Craig, Jr. — named manager, Newark (N. J.) factory branch, Trailmobile, Inc.



Charles F. Neuhaus — appointed traffic supervisor, Organic Chemicals Div., American Cyanamid Co.

O. A. DeCroce — appointed general traffic manager, Armstrong Cork Co., Lancaster, Pa. He succeeds E. George Siedle, who retired.

Kenneth H. Jamieson — new general traffic manager, Eastman Kodak Co., Rochester, N. Y. He succeeds Charles H. Vayo, who retired. Eastman also named Francis P. Ryan as assistant general traffic manager.



Howard P. Strother — named San Francisco branch manager, The White Motor Co., Cleveland, Ohio.

Richard H. Heilman — named general traffic manager, A. O. Smith Corp., Milwaukee, Wis. He succeeds Alfred H. Zastro, deceased.

Walter F. McCreight — appointed general traffic manager, The Thatcher Glass Mfg. Co., Inc., Elmira, N. Y. He succeeds Charles Latshaw, who resigned. Thatcher also named Peter H. Theopheles as assistant gtm.

(Please Turn to Page 56)

MacGregor puts drive in deliveries with Delta-C&S airFREIGHT



Harold Sargent (right), widely-known "pro" of Atlanta's famed East Lake Country Club, delivers a hurry-up shipment of MacGregor clubs received by Delta-C&S airFREIGHT.

Speed and timing—so vital to the golfer's swing—mean just as much in supplying players with the equipment they want *when they want it*. That's why MacGregor Golf Co., top name in golfdom for more than 50 years, uses Delta-C&S to supply the club professionals and leading retailers who serve the Southern public.

"Flying freight enables us to make rush deliveries overnight," MacGregor reports. "A shipment can fly from our plant city, Cincinnati, to Atlanta in *half* the time you'd take to play an 18-hole round. Golfers like this sizzling service. It helps build their game while it builds *our* reputation!"

Leading companies in nearly every field use Delta-C&S to speed sales, improve service and cut costs. Find out what flying freight can do for you!

For a free analysis of your shipping problem, call your local Delta-C&S office, or write direct.

All Delta-C&S flights carry airFREIGHT

SHIP VIA





Washington

DA

By Ray M. Stroupe, *Chilton Washington News Bureau*

Section 22 Deadline

Groups interested in a proposed ICC rule relating to Section 22 rates are given until Dec. 1 to file their briefs with the agency. Evidence has been taken on the proposal, dealing with one aspect of the permission granted in Sec. 22 for carriers to give lower-than-commercial rates to agencies of federal, state, and local governments. In general, the rule would require common carriers of freight to file with ICC 30 days before the effective date almost every Sec. 22 rate.

Proposed Change

Transportation officials at U. S. Commerce Dept. are not convinced that ICC is doing all it can to speed handling of carriers' petitions for general rate increases. Improvement of ICC methods for managing rate increase proceedings is acknowledged at the department. At the same time, though, there is a feeling that an "administrative standard" may be needed to insure prompt treatment of the issues involved.

Truckers' Case

Motor carriers will get an opportunity to present their arguments for higher-than-rail rates at an ICC hearing scheduled for Nov. 29. Truckers were unsuccessful in petitioning ICC to broaden its investigation of motor carrier rates between Middle Atlantic and New England points. Class rates under study are 20¢ per 100 lb higher than corresponding rail rates on shipments under 2,000 lb and 10¢ higher on shipments between 2,000 and 6,000 lb.

Favorable Forecast

Chances of ICC approval of the McLean Trucking Co. plan to install East Coast trailership service looked good last month. In an ICC rehearing of estimated cost data, opponents of the plan seemingly reversed their original position. Initially, railroad spokesmen had argued that the roads would be affected seriously if McLean attracted volume business with low rates. There was a subsequent switch to a contention that cost data estimates were faulty, making high income from the service unlikely.

Career Change

Experience in the air freight service field forms part of the business background of the new director of Foreign Operations Administration activities in Europe, Charles F. Urschel, Jr. The San Antonio, Tex., resident is a director and former vice president and treasurer of Slick Airways, Inc. He will be responsible for FOA missions in Norway, Denmark, the Benelux countries, Western Germany, Austria, France, Italy, Spain, and Yugoslavia.

Heavier Traffic

Gains in the freight tonnages moved along inland waterways are important items in official statistics on U. S. waterborne commerce for 1953. Traffic on inland waters rose last year to a new record of 200 billion ton-miles, or 18 billion ton-miles more than the previous high figure, set in 1951. Chief increases were made on the Great Lakes, with a recorded traffic of 127 billion ton-miles, and the Mississippi River system, with 42 billion.

Rate Parity

Ordered by ICC recently was parity of rates charged by motor and rail carriers on shipments of mixed freight in the East and between Eastern and Mid-western points. ICC directed that truckload rates be raised by 16¢ to 33¢ per 100 lb to meet the rail rate level. A study of competitive actions by both types of carriers preceded the agency's order. In the ICC view, truckers' lower rates could have led to harmful motor-rail competition.

Caution Signal

Common carriers of freight see signs of warning in a federal court decision involving a carrier which did not provide service requested by a picketed firm. Eighth Circuit Court of Appeals ruled recently that the Minneapolis and St. Louis Ry. Co. was liable for damages because it failed to move perishable goods from a picketed plant. The carrier's argument that physical violence would have occurred if train crews had crossed the picket line was deemed not genuine by the court.

Official Turndown

Refused by ICC is the application by Commercial Barge Lines, Inc., for permanent authority to haul grain and soy beans on the Mississippi River and related waterways. ICC says those lines now offering this service are doing a "reasonably adequate" job. Not affected by the decision is Commercial's major business, hauling automotive vehicles and parts to and from Mississippi ports.

Declining Needs

Depot and storage handling needs are reduced, Army Secretary Stevens says, by increasing use of open-end and call-type contracts for Army procurement. Shipment under these contracts is made straight from the producer to the site where the goods are to be used. At the end of the 1954 fiscal year, there were more than 2,600 such contracts covering procurement valued at \$207 million.



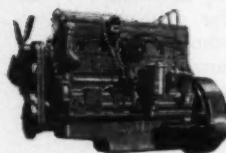
NEW space-saving, high economy, big capacity COE models—3 series, 12 models from 21,000 to 30,000 lbs. GVW—50,000 to 65,000 lbs. GCW. Also available with Sleeper Cab.

NEW MODELS NEW FEATURES

INTERNATIONAL keeps 'em coming ... all the time, to do today's truck jobs better, at lower cost!

INTERNATIONAL continually brings you great new truck features, new all-truck models, new value for your truck dollars, in the world's most complete truck line. **INTERNATIONAL** follows this policy to give you right now the developments that will help you do your hauling jobs better, cut your costs and boost your profits. Before you make any truck purchase, check all the new developments shown here—then let your **INTERNATIONAL** Dealer or Branch give you *all* the reasons why an **INTERNATIONAL** is your best truck buy.

INTERNATIONAL HARVESTER COMPANY • CHICAGO



NEW increased power, with all-new 201-hp Royal Red Diamond 501 engine standard in new high-power-to-weight 220 Series models.



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INTERNATIONAL TRUCKS

"Standard of the Highway"

Proximity to pick-ups, deliveries, and connecting carriers should be considered in connection with land, building, and operating costs; size of lot needed, and availability of services and facilities



NOVEMBER, 1954
Vol. 53, No. 11

Terminal Site Selection First Step to Efficiency

MOTOR carrier management which contemplates construction of new terminal facilities first is confronted with the problem of site selection. This involves two issues:

1. Required size of the new lot, and,
2. Location of the lot.

Size of the Lot

Several factors determine how large the yard must be to accommodate required facilities and provide for expansion. These controlling factors include the following:

1. Length and width of the terminal building, including the office.
2. Position of dock on lot.
3. Width allowed on either side of the dock (apron) for vehicle maneuvering.
4. Size and location of the shop.
5. Size and location of the fueling and service area.
6. Size and location of the parking area.
7. Size and location of the weighing area.

(The seven items listed above are discussed in more detail in subsequent articles appearing in this issue of *DISTRIBUTION AGE*.)

Since size and location requirements of terminal components must be determined before selecting the site, it would appear at first glance that we will be "putting the cart before the horse" if

we discuss sites before devoting space to what determines the size and location of the components.

While it is true that a carrier must ascertain his overall needs in plot size from the various terminal components, he does so only in round figures, that he may know in general terms what size lot he needs.

Having determined his overall requirements, the carrier then attempts to locate a suitable site of that size and shape. Rarely, however, will there be found an available site which matches exactly the carrier's original concept. However, the carrier selects the site of his choice, based on the factors enumerated below, then molds his terminal to fit the site.

Site Location

While there are numerous sources of information on available sites, it is suggested that local chamber of commerce surveys may prove most useful.

Such a survey usually includes a list of available sites with figures on cost, taxes, etc.; a statement of labor available, public utilities serving the area, nearness to other transportation facilities, a list of companies located there, their products and services, and other information concerning local industrial advantages.

Numerous factors determine

good terminal location. These factors may be grouped in three classes: General, construction costs, and operating costs.

The general classification includes such considerations as:

1. Distance from employees' homes.
2. Available transportation for employees.
3. Zoning requirements.
4. Lay of the land.
5. Suitability of the site.
6. Agreeableness of the surroundings.
7. Room for expansion.
8. Facilities for sewage.
9. Drainage facilities.
10. Availability of such facilities as heating fuel, electricity, and drinking water.
11. Accessibility to traffic arteries.
12. Traffic congestion and obstructions such as bridges, underpasses, and railroad crossings.

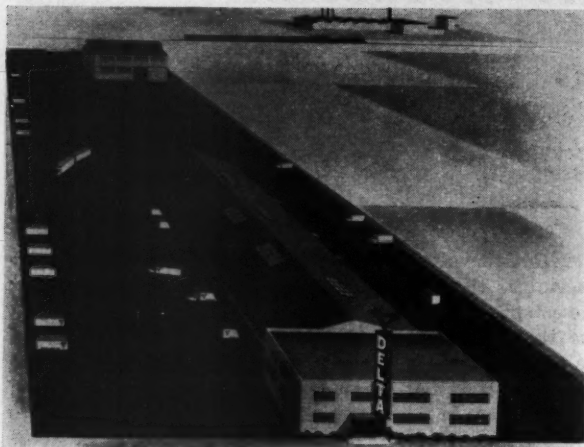
Construction Costs

In respect to construction costs, the following should be considered:

1. Cost of the site.
2. Cost of development of the site, amount of grading, excavation, drainage, etc.
3. Cost of constructing the various elements that make up the completed terminal.

(Please Turn to Page 78)

Right: New M&M Transportation Co. terminal in Long Island City, N. Y., has fully enclosed dock measuring 125 by 53 ft



Delta Lines, Inc., is constructing this new terminal in Emeryville, Cal. Its 80- by 225-ft dock has 46 berths

By C. J. Harrington, Jr.
Chairman, Terminal Design Committee
The Operations Council, ATA

THE MODERN motor truck terminal is essentially a distribution facility, generally accepted construction fundamentals of which include:

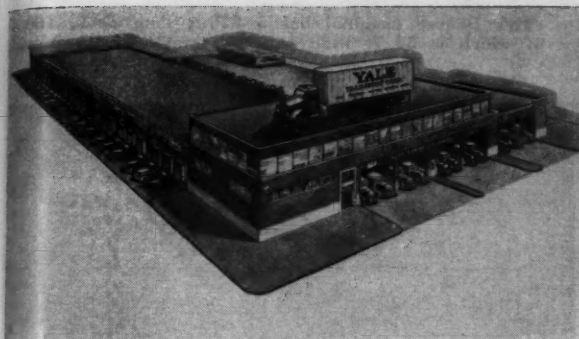
1. Use of the one-story type dock.
2. Use of direct-flow, assembly-line type principles.
3. Extensive use of modern materials handling methods.
4. Use of effective traffic flow and storage layout plans.

A recent ATA survey notes increased con-

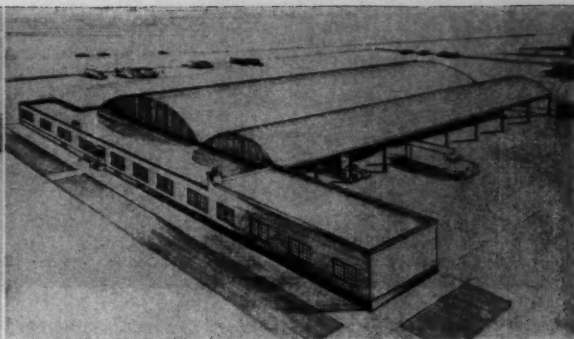
Terminal Design And Construction Standards

Kingsway Transports, Ltd., of Montreal, Canada, has built this new terminal in Lyndhurst, N. J. It has a 60- by 90-ft dock with 14 doors and berths





New Yale Transport Corp. terminal in New York, N. Y. has a 50- by 220-ft dock with 43 truck berth openings



Artist's drawing of the \$500,000 Chicago terminal of Navajo Freight Lines, scheduled for January completion

struction of the popular T-shape terminal design. Recommended is the island-type dock, with its longitudinal axis in the direction of prevailing winds, where possible.

Dock Length

The length of the dock is determined by the number of doors per side, which is dictated by the number of berths needed for efficient handling in peak periods (see "Determining Dock Length by Simple Formula," Page 34).

For maximum utilization of natural lighting, the dock should run east and west, permitting entrance

of light through doors and windows on the north and south sides.

The terminal yard should be laid out to provide a counterclockwise traffic pattern. This permits backing vehicles from the left. In all elements of terminal design, careful consideration should be given to provisions for future expansion.

In determining dock length, berths should be figured on a 12-ft basis, which permits use of 10-ft overhead doors on 12-ft centers. Benefits derived from use of the 12-ft berthing space in preference to the 10-ft space are many:

1. Apron space required with

tractor-trailer combinations of 45-ft overall length is 57 ft with 10-ft berths, opposed to only 49 ft with 12-ft berths. However, by increasing berth width to 14 ft, apron space is reduced only one foot, to 48 ft.

2. Labor time lost in maneuvering is reduced to a minimum.

3. Equipment can be serviced at the dock.

4. Equipment damage (doors, side lights, etc.) is minimized.

5. Usable space on the dock is substantially increased. (A 12-ft width gives a palletized operation 30 per cent more working and storage space than a 10-ft width.)

6. During peak periods, three small trucks can be backed into a two-truck berth.

Dock Width

The dock width should be based on the amount of freight handled, the amount floored, and the type materials handling equipment used. For small terminals with a

(Please Turn to Page 89)

Since it is a distribution facility, the terminal should be designed to provide the most efficient services—here are a few recommended standards

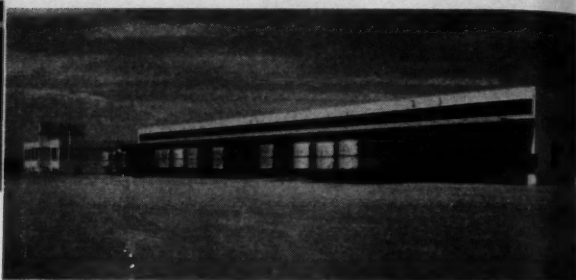
Below, left: New Watson Terminal, in Peoria, Ill. Below: Hemingway Bros., Interstate Trucking Co., Massachusetts





Pacific Intermountain Express Co. terminal in Denver, Colo., provides 43,000 sq ft of office and dock space

PIE's Denver terminal has a 270-ft long dock, 160 ft of which is 50 ft wide and the remainder 25 ft wide



Canopied loading dock of the Interstate Motor Carrier System terminal, in Chicago. Terminal was built in 1936



Concrete diagonal arch method of roof support is used in interior of terminal. View shows the shipping room

Concrete Construction For Freight Terminals

Listed among advantages of concrete for terminal buildings are its ability to stand severe usage, economy, adaptability and flexibility

THERE are many examples of concrete freight terminal construction to demonstrate its practicability, economy of construction and maintenance, as well as attractiveness architecturally.

The most outstanding features of concrete construction—unequaled ability to withstand all kinds of severe external conditions, from weather to A-Bombs, and durability—are well known.

As a construction material, concrete requires no special treatment of walls, floors or pillars. They may be left exposed as finished.

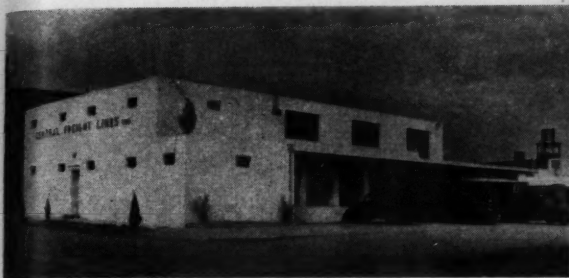
Because of the fluidity and ease of handling of the material, ornamentation may be cast into the panels as desired, canopies may be cast integrally with the wall panels, and such modern design features as round-cornered roofs,

rounded building corners, windows and doorways may be easily included in the construction.

In recent years, a process of casting reinforced concrete wall panels horizontally on to an existing floor and tilting them into place by the means of a hoisting rig not only has expedited construction, but also has reduced construction costs. This process, properly known as tilt-up construc-

60 ft
wide

Central Freight Lines, Inc. terminal, in Waco, Texas, illustrates architectural possibilities with use of concrete



Another Central Freight Lines terminal, this one in Fort Worth. Tilt-up type construction was used in all

tion, eliminates a great deal of forming and simplifies finishing of the operation when the panels are joined by cast-in-place columns.

In tilt-up construction, window openings, outlet boxes, conduits, etc., are cast into the panels.

Concrete naturally has good insulation properties but if higher insulation is required it may be sandwiched between layers of concrete.

Where an unusually high degree of strength is required without bulk, prestressed, precast concrete members are rapidly gaining popularity. In prestressing, the concrete is cast and placed under tension by means of high-tensile reinforcing. This enables the builder to use narrower members over longer spans than possible with ordinary reinforced concrete. Prestressed concrete is especially desirable where large unobstructed expanses of floor area are required, and where high head room is needed.

Architecturally, many pleasing effects can be obtained with the simplest kinds of materials. Steel or plywood panels are being used for smooth wall effects and standard types of moldings can be employed to give very interesting design accents.

While natural concrete buildings normally present an attractive appearance, additional attractiveness can be obtained by coloring the concrete during construction.

Because the construction methods are flexible, a terminal may be designed for great future capacity but only partially constructed to meet present needs. For example, if the end of a terminal is constructed of concrete block, while the rest is poured concrete, the concrete block wall may be removed at any time to lengthen the dock as needed. Provision also can be made for vertical additions of two, three or more stories.

The many other advantages of concrete construction are too well known to devote much time by way of explanation. However, in passing, it should be mentioned that insurance premiums on these buildings are very low.

Materials for concrete construction are readily available, most forms and molds can be made on the job, and practically all construction workers are familiar with its use. •

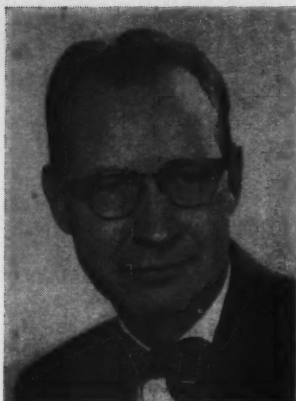


Roof construction with precast concrete slabs 20 ft long and 24 in. wide, supported by reinforced beams and columns

Waterside view of the concrete dock and concrete freight shed, which are supported by concrete piles in Mobile, Ala.



Covered railroad loading dock along the side of one of three new precast concrete warehouses built for Navy in Great Lakes

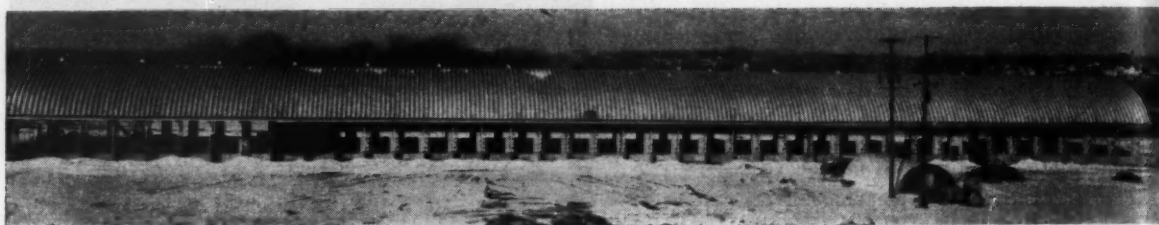


By Edward Logrbrinck
*Vice President
 Wonder Bldg. Corp. of America
 Chicago, Ill.*

Pre-fab Possibilities

Trussless construction of pre-fabricated steel buildings, which can be erected in a short time by unskilled labor, opens the way to low-cost terminal structures in the transportation field

Darling Freight Lines terminal, Grand Rapids, Mich., is 60x504 ft, has 56 truck level height bays. After steel work was completed, building was erected in just 15 days



AN INEXPENSIVE new building, developed on a trussless construction principle, which several unskilled persons can erect in only hours, is being utilized by the transportation industry as a freight terminal, garage, and warehouse for vehicles and materials.

Because of its unique construction — which eliminates trusses, pillars, beams and supports of all kinds — every inch of space inside this building is clear span and can be utilized for parking and storage. Many inside traffic problems are eliminated because no pillars or structures stand in the way.

Motor Freight Terminal

Darling Freight, Inc., of Grand Rapids, Mich., has erected a 504-ft long, 70 ft wide building, capable

of handling a half million ton of freight a year. The terminal, the largest in Western Michigan, contains a garage section within the building for repairs and maintenance. It is constructed so as to permit vehicles to drive, on an assembly line basis, through automatic washing and gas machines, and over weighing scales, without the driver leaving his cab. The garage section takes five lanes of semi and trailer parking for a distance of 192 ft.

The terminal has 56 doors, each of which is protected by a 10-ft canopy. Thus, the rears of the trucks are protected from inclement weather conditions for their back loading operations. The inside traffic is controlled by an in-floor truck dragging system.

Because of the low construction

cost, and the floorveyor, it is estimated that there will be a savings of 50¢ per ton for goods that roll over the floor. This figure is 25 per cent of hand-trucking costs. Based on the half million freight tonnage per year that will be handled, a \$25,000 annual savings will be effected for the occupants. Structural cost of erecting the terminal approximated \$3 per sq ft.

The building was erected six feet at a time, and 4,200 sq ft of floor area was covered in one day, with only 10 men working with a crane. If added room is needed, the Darling Terminal can be lengthened to twice its present size within 12 weeks time by merely adding 2-ft wide arched panels to the present building.

The all-steel, pre-fab building, which has enjoyed a meteoric rise

es in Terminal Construction



Clear span in Darling terminal permits unobstructed flow of material via in-floor truck dragging system

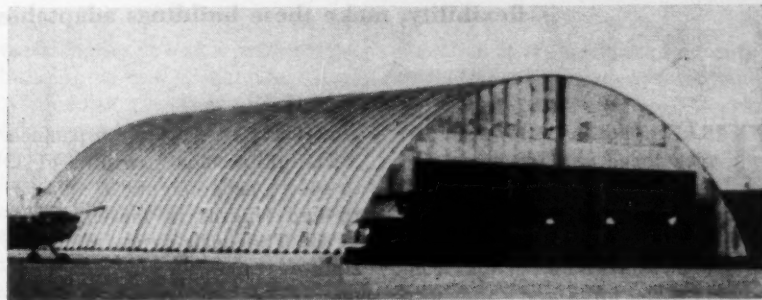
This 60x80-ft prefabricated steel building is used for a variety of purposes at Crystal Airport, Minneapolis

in popularity in the past 20 years, is being used to advantage throughout the trucking, railroad, aircraft and steamship industries.

Listed among the reasons for the use of steel pre-fab buildings is the low cost and erection advantages of this type construction. Because of the high cost of materials and labor, and the continuous need for freight terminal expansion, pre-fabricated buildings have, in many instances, taken the place of conventional masonry, brick and wood construction.

It is not unusual for freight terminal operations, needing additional space rapidly, to have a pre-fabricated structure built at a minimum cost, within a period of a few days to several weeks.

Minimum cost in this case means



from one-third to one-half of the cost of conventional masonry construction. On a standard freight terminal, the cost will run from \$5 to \$10 per sq ft, whereas in pre-fabricated steel construction, the price runs from \$2 to \$3 per sq ft.

This savings is due to standard-

ization of the components that make up a pre-fab steel building, limiting the crafts to one trade, and thus avoiding the time lag of the various crafts that is normal to conventional building. In ordinary construction, two-thirds of the actual cost is labor, whereas in

(Please Turn to Page 61)



Above: Interior of new 21,700 sq ft freight house of standardized steel frame design built for CB&Q railroad



Left: Long canopied truck dock at the Morton Park (Ill.) installation is 70 ft wide, 310 ft long, and has 14 ft eaves

Standardized Buildings Cut Construction Costs

Fast and economical construction, plus availability and flexibility, make these buildings adaptable as terminals

TRANSPORTATION companies faced with the need for new buildings might do well to investigate the possibilities of pre-designed, permanent, steel-frame structures made from standardized units and shipped to location as a single package.

Advocates of this type construction point to the low cost of erection, speed of erection, and flexibility of design.

While the framing is standardized, there are three basic types available. In addition, the owner's selection of flooring, side wall, and roofing material is unlimited, making the building adaptable to

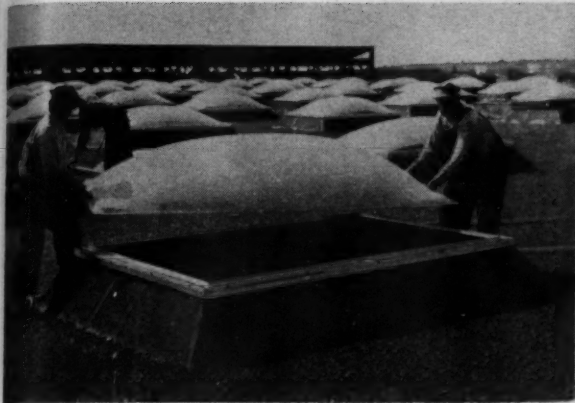
almost any type operation planned.

The units come in widths of 32 to 100 ft, eave heights of 12 to 20 ft, and lengths in increments of 20 ft. The basic types include a rigid A-frame design, center column design, and a crane building equipped with rails and supports for overhead traveling cranes.

Speed of erection and low cost involved result, of course, from standardization. All that is required at the building site are a crane, bolts, a set of wrenches, and a construction crew. Actual construction is done either by the manufacturer or a local contractor.

Framing is fabricated at the manufacturer's plant from standardized, heavy, rolled steel members. The range of standardized sizes, plus the choice of collateral materials and door and window locations, permit the terminal operator to design a building with individuality, and one that is best suited to his operational needs.

In this era of rapid expansion, speed is an important consideration. In many instances, depending of course on the size and type of building required, buildings have been completed in as little as 15 to 30 days from the date the order was placed. •



One of 585 new plastic domes being set in place on a Signal Corps depot roof. Domes provide natural light



Fiberglass acoustical boards are placed before deck is poured. Board serves as deck form and interior ceiling

Roof Construction In Terminal Design

More times than is realized, the terminal roof is a serious contributing factor in damage claims—in addition, faulty roof construction boosts heating and terminal maintenance costs

THE recent hurricane Hazel pointed out the importance of good roof construction. Some roofs in the path of this heavy storm were crumpled like so much cardboard, others not only remained standing but showed no signs of damage.

While hurricanes of that severity do not occur every year, such extreme conditions should be given consideration if a terminal is planned to be in existence for many years to come.

The roof, more times than is realized, figures in damage claims. There are many cases on record where leakage through roofs have damaged cargoes. In addition, faulty constructed roofs leak heat in the winter and add to terminal

maintenance costs within the building as well as outside.

In addition to wear and tear by the elements, the life of the roof is affected by the use of faulty or improper materials, poor or weak construction, the lack of adequate flashing at the sides and protection around ventilators, skylights, chimneys, signs and other construction factors.

Often, a roof will be constructed with just a thought that it must stand up under rain and snow. Later it is discovered that foot traffic in the course of cleaning and maintenance of skylights, ventilating units and other facilities on the roof cause untimely wear and breakdown.

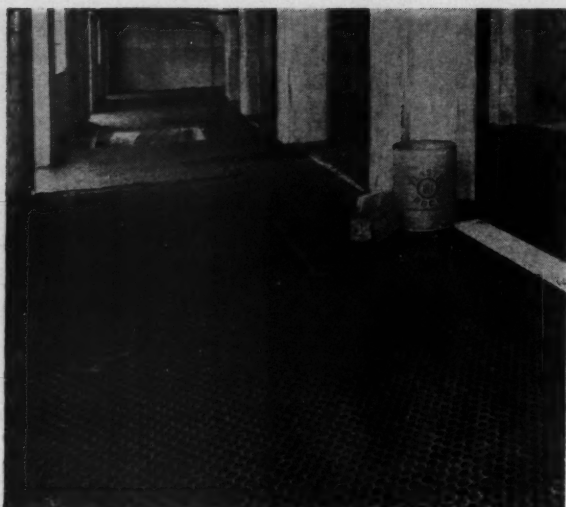
From the standpoint of con-

struction it is important that only first class materials and workmanship be used. Wood roof decks, for example, that have many knot-holes are direct sources of trouble in those areas. Rupture in the weather seal due to careless walking on it in the process of construction or careless application will result in a roof that will give trouble in the future.

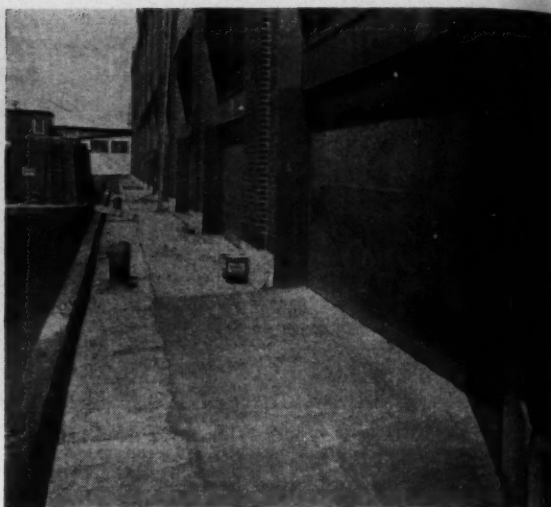
Roofs made of slab materials, requiring grouting at joints, should be tight and the mortar flush with the surface, otherwise these joints will be the first places where cracks and leaks will occur.

In the case of roofing using felt materials, there should be adequate overlap and thorough mop-

(Please Turn to Page 57)



Steel grid imbedded in concrete or mastic floor offers high wear resistance in areas of heavy equipment traffic



This steamship loading dock was repaired to a tough feather edge with a commercial resurfacer and concrete patch

Terminal Floor—Cornerstone of

The floor is one of the more important elements in a terminal's profit picture, since all freight—incoming, outgoing, and temporarily floored—is in constant contact with the flooring surface

INCOMING, outgoing or temporarily floored—all freight in terminal operations is in constant contact with the terminal floor. Floor construction and floor maintenance, then, are among the more important elements in the terminal profit picture.

Money and Man-Hours

Poor flooring, floor breakdown, or equipment down - time resulting from inadequate floors cost money and man-hours in damage claims, excessive building and equipment maintenance costs, and inefficient operation. Often these extra costs may spell the difference between profit and loss.

It should be obvious that rolling

equipment will perform in direct proportion to the condition of the surface on which it rolls. Unless a hard, clean surface is provided, such equipment will not give peak performance.

Cracked, broken, or uneven floors slow down in-and-out time, create a serious safety hazard, and skyrocket damage claims and maintenance costs. The good dock floor, in addition to being hard, smooth, and clean, should eliminate dusting, be of the non-skid variety, be spark-proof, be corrosion resistant, and, where possible, conducive to noiseless equipment operation.

One of the principle causes of floor breakdown is improper operation of wheeled equipment. Quick

turns and fast starts and stops create tire scrubbing, which is extremely hard on floors. Improperly designed industrial trucks and poorly maintained trucks also contribute to floor wear.

Floor Cleanliness

Cleanliness is the most important element of floor maintenance. All terminal floors should be subject to periodic cleaning. Scrubbing is called for in areas where corrosive or penetrating liquids are spilled, and a crust should never be allowed to accumulate in areas of heavy trucking.

If at all possible installation of a new floor should be considered, unless the old floor is in excellent condition, when major materials handling equipment installations are planned.

While a new floor may be out of the question, the possibility of complete resurfacing should not be overlooked. Where a new floor or resurfacing both are impractical, a careful patching job is called for. In addition to the normal flooring materials, a number of excellent

weather
patch



Application of a grout coat of cement to the underslab is the first step in building a good granolithic concrete floor



Several successive machine and hand troweling operations give maximum density, uniform hardness, and smoothness

ne of Profit

stops commercial patching compounds are on the market.

Reinforced Concrete

Reinforced concrete is one of the most practical material for terminal floors. Properly installed it is long lasting and provides an excellent traffic surface. Gravel or crushed stone may be used as a wear-resistant aggregate on dock floors subject to heavy and frequent wheeled equipment traffic.

In addition to their wear-resistance, concrete floors offer a high degree of fire safety, present a good appearance, offer greater load capacity, and are easy to maintain.

Prime Considerations

In building a concrete floor the most important considerations are proper proportioning of suitable materials, adequate bonding in two-course construction, proper finishing, avoidance of a weak mortar topping, and, perhaps most important, a reasonable time allowance for curing.

The most frequent complaint concerning concrete floors involves

dusting. This condition is caused mainly by improper floor construction and the pounding of metal-wheel industrial trucks. The best dusting preventive measure involves a long curing period, continuing for a minimum of from 7 to 14 days. In addition, chemical substances in commercial preparation are available as hardening agents.

If the concrete floor is subject to particularly severe wear, special materials can be used to provide a resistant surface. Trap rock or granite can be used in the topping. Occasionally carborundum or iron filings are sprinkled on the floor prior to finishing.

Resilient Floors

Floors of mastic material or asphalt also give satisfactory service in many instances. They are particularly effective when installed over concrete bases.

They offer the additional advantages of resilience, resistance to cracking, are dust free, and have a tendency to pack under heavy traffic. Generally these floors are less expensive than concrete, and

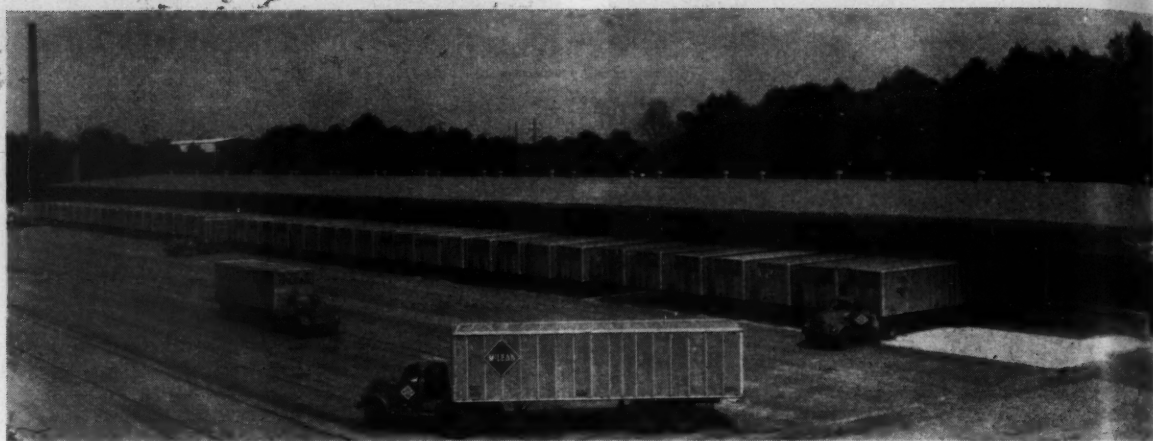
are more easily patched than concrete.

In using a mastic surface, care must be taken that the old surface is completely free of grease and oil and thoroughly cleaned to insure a lasting bond between the two surfaces.

In considering resilient flooring for terminals, particular care must be taken in selecting the contractor, since this type material needs expert workmanship to insure a lasting, trouble-free job.

Great success has been reported in the use of steel mesh in floors, into which concrete or mastic material is poured. While this system is relatively expensive, the cost is quickly amortized in reduced maintenance costs in areas of particularly heavy traffic.

Whatever the flooring material selected, it should be of the highest grade available, and should be installed under rigid construction standards. A nominal saving in material or workmanship is false economy, and will cost many times over the saving in later maintenance and replacement expenses.*



McLean Trucking Co.'s new Winston-Salem (N.C.) terminal provides truck berths for 118 vehicles. The 600-x 130-ft dock can handle 3 million lb of freight daily

Determining Dock Length By Simple Formula

One of the more important considerations in terminal design is determination of dock length—here is a mathematical formula which should simplify the task

ONE OF the more important considerations in terminal design is determination of dock length—a calculation which should be made only after an exhaustive scientific study of all factors involved.

Generally, dock length depends on the number of units, trucks and trailers, to be simultaneously spotted.

Numerous factors have a bearing on the maximum number of units to be spotted at any one time. In general, however, the problem resolves itself into two issues: Inbound-delivery phase, and pick-up—outbound phase.

Since either phase might require more spots than the other,

it becomes necessary to determine exact requirements for each. Spots required during the peak phase determine the dock length.

Inbound-Delivery

In most terminals the working day is divided into two distinct operations, the first of which is the inbound-delivery phase. This involves morning arrival of line-haul trailers loaded with miscellaneous freight, generally between 5 AM and 10 AM.

After arrival, the miscellaneous loads are spotted, stripped, freight sorted on the dock by city zone or delivery route, intraline or interline transfer, and city delivery trucks and/or trailers are loaded

in delivery sequence for consignees and connecting carriers.

The number of units that should be spotted simultaneously in order to efficiently handle the inbound-delivery phase can be determined by the number of road units to be stripped at one time, and the number of city units to be loaded at one time.

Many carriers tend to create their own peaks by unloading too many units at once, flooding the docks with more freight than can be handled.

Stripping Operation

Stripping is the key to handling the unloading peak, since it sets the pace for the entire operation.

The Basic Formula

In general, the length of a terminal dock is predicated on the number of units which must be spotted simultaneously at the dock. To arrive at this figure, both phases of terminal operation—the morning, or inbound delivery phase, and the afternoon, or outbound phase—must be carefully analyzed.

The morning phase is found by combining the number of road units to be stripped at one time, and the number of city units to be loaded at one time. The formula is reversed for the afternoon phase, combining the number of city units to be stripped at one time with the number of road units to be loaded at one time.

In all cases, the same four factors must be known before the formula can be worked. These include:

1. When shall stripping (or loading) begin?
2. When shall stripping (or loading) be finished?
3. How many loads will there be to strip (or load)?
4. How long will it take to strip (or load) a unit?

With these four known factors, it becomes a pure mathematical problem to determine the number of units to be spotted for each part of each phase.

If, for the morning phase, it is found that 10 spots are needed for simultaneous stripping of road units, and 13 spots for city unit loading—a total of 23 berths are needed. Assuming that the afternoon phase demands 10 spots for stripping city units and 20 for loading road units, a total of 30 spots are required.

By comparing the morning figure (23) with the afternoon figure (30), it becomes obvious that the afternoon or outbound phase must govern the dock length. Hence the dock must be built to accommodate at least 30 units. Since most units are parked in pairs, with double doors, the dock will be designed to accommodate 32 units—16 on each side. Allowing 12 ft for each unit, the dock length becomes a minimum of 192 ft.

To plan the stripping pace, four principal factors must be known:

1. When shall stripping begin?
2. When must stripping be finished?
3. How many loads will there be to strip?
4. How long does it take to strip a load?

As an example, assume the following conditions: Stripping shall begin at 5 AM; it must terminate by 9 AM; 20 loads varying in weight between 20,000 and 30,000 lb and with a total weight of from 400,000 to 600,000 lb must be stripped; a good man can strip a unit in approximately two hours.

Since stripping must be completed in four hours, and since

each stripper can unload two units in this period, the 20 units should be unloaded in two waves of 10 each. Ten miscellaneous loads should arrive for simultaneous unloading before 5 AM, and 10 more before 7 AM.

It should be noted that if any of the variables are altered, the number of unloading spots needed also must be refigured. If, in the example above, unloading time was cut to two instead of four hours, the number of spots needed for simultaneous unloading would be 20 instead of 10.

Some firms prefer to spread the work over a longer period, making a more even work schedule. Others prefer a shorter period

with a larger force in order to get all city freight on the street in the early morning hours.

As the number of schedules increase, so may the number of arrival and unloading waves be increased. This technique is used by some firms. It is recommended, however, that no line-haul units arrive after 9 or 10 AM, at the latest, in order to get loads worked down and loaded out on the same day.

City Unit Loading

In planning the loading factor on city units, the same four basic points mentioned above must be known—when to begin, when to end, number of units, and loading time per unit.

As an example, assume this set of conditions:

1. City loading shall begin at 5 AM. (Some or all intraline, interline, or city freight may be loaded directly from inbound trailers by cross dock transfer. The remainder will be floored and loaded out beginning at 7 AM.)

2. Loading must be completed by 10 AM.

3. There will be 40 city delivery trucks (or 32 trailers if trailers are used) to be loaded.

4. It takes an hour to load a city truck and an hour and a half to load a trailer.

All loading must be completed in five hours, with the majority to be done in three hours. Each stacker can load three trucks or two trailers in the 3-hour period. Since there are 40 trucks to be loaded, 13 should be loaded simultaneously. In the case of the (32) trailers, 16 should be loaded at one time.

The number of units which must be spotted at the dock at any one time during the inbound-delivery phase, then, depends on the number of inbound miscellaneous loads to be worked simultaneously, plus the number of city units to be loaded out.

Total Berths

In the example given, spots required are 10 for road units, 13 for city trucks (or 16 for city trailers). Total berths will be 23 or 26.

(Please Turn to Page 62)

Adjustable Ramps Speed

Vehicle bed height variances make it almost impossible to design a dock

By C. W. Choromanski
Executive Vice President
Rove Methods Inc.
Cleveland, Ohio

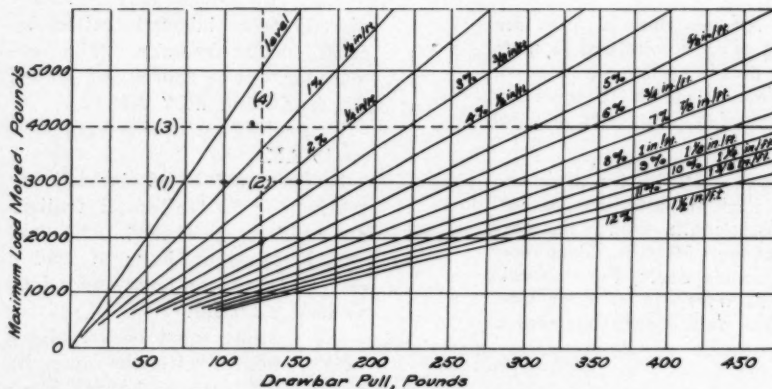


Fig. 1: Tractive effort required to move roller bearing rubber-tired trucks over concrete or steel floors at various grades. Drawbar pull has been taken at 25 lb per 1,000 lb of load, or 2½ per cent. For manually operated trucks, if good footing is available, maximum permissible force exerted usually is assumed equal to a man's weight. Average exertion should not exceed 60 per cent

Fig. 2: First step in choosing adjustable dock is determining maximum angle of bridge which is allowable

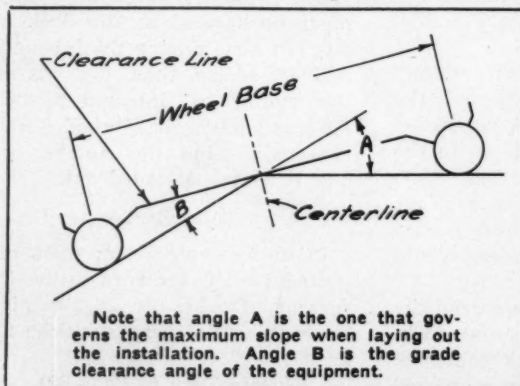
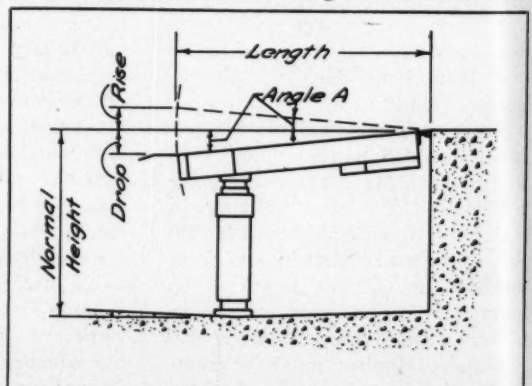


Fig. 3: Next step is to determine length of bridge to be used between different heights of bed and dock



IF THERE is one common problem in the design of a new freight terminal, or in modernizing a shipping or receiving platform, it is to make the dock height match the highway truck's floor height.

This problem is of comparatively recent origin. Back in the days when wagons were used, receiving and shipping dock height was no major problem. Wagons had steel tires and springs had low deflection; bed height of the vehicle remained practically constant whether it carried a load or was empty. The height of a wagon bed normally matched most dock heights.

Wide Variance

Such is not the case today. For a number of uncontrollable reasons, bed heights of motor trucks and trailers vary considerably. To design a fixed dock suitable to the heights of all vehicles is practically impossible.

d Loading, Unloading

height to a single standard accommodating all trucks

Some firms have computed the average of all truck bed heights serving their plant on a regular basis and designed their dock to the mean average. Even so, they have discovered that a wide variance still exists that does not permit maximum handling efficiency without special equipment.

Despite modern efforts by the manufacturers to standardize, modern trucks and trailers are built in a seemingly unlimited number of types and sizes. Pneumatic tires and massive springs have a wide range of resiliency; although they have done wonders in the battle against damage from vibration and shock, they have greatly compounded the problem of transfer of cargoes to and from docks.

An empty vehicle rides at its highest point when loaded, the springs and tires depress and dock height is no longer approximate to bed height. In fact, the variation in truck bed heights compared

to dock heights has been as great as 14 in. Unless the dock and truck bed are properly bridged, high-speed, heavy load-carrying mechanical handling equipment cannot be used to maximum advantage. The receiving and shipping dock of a plant thus becomes a bottleneck.

Bridge Plates

The most common method of bridging this space between the dock and vehicles of differing heights makes use of simple bridge plates. This equipment is satisfactory where the height differential is moderate and where traffic conditions are low to moderate.

Care should be exercised in the use of ordinary steel plates for this purpose. These plates tend to creep and slip under traffic and heavy load conditions and their sharp corners can cause injury. Moreover, they are heavy and awkward to handle.

If the height differential is se-

vere, the average bridge plate may not provide the best solution because of the incline. It is possible to reduce the degree of incline by using a longer bridge plate. In such a case, the plate must be long enough to provide a relatively flat slope and strong enough to support heavy loads.

However, there is a practicable limit to long bridge plates. The needed length and extra strength may result in a plate too heavy and bulky for easy handling. If made of light weight materials some of the objections may be overcome but long lengths still create a problem of storage when not in use. Again, if the objections can be overcome bridge plates function satisfactorily under low traffic conditions.

A caution to be exercised in high slopes is insurance that the top angle of the grade will permit small-wheeled vehicles to clear the top without contact which might cause damage to the vehicle, upset its contents and injure the operator. This condition is illustrated in Fig. 2.

The manually propelled truck operates at top efficiency on a level plain or up a gentle slope. The capacity handled falls off sharply when a steep grade is encountered such as shown in Fig. 1. If the slope is excessive, the operator often is required to make a running start. Otherwise, he may have to rely on assistance from other workers to move his vehicle from the lower to the higher level.

(Please Turn to Page 60)

Fig. 4: Adjustable ramps speed loading and unloading by permitting safe entry into truck by handling equipment



Fig. 5: In using bridge plates, extreme care must be taken to use material strong enough to support heavy loads



Hand, Fork Trucks Dominate

TO PLAN or build a modern freight terminal without giving thought to the physical handling methods of loading, unloading and sorting the cargoes is as senseless as buying a modern trailer or semi-trailer and hitching it to a team of horses.

Today's freight terminals require the utmost speed, efficiency, safety and low handling cost. These objectives are impossible to achieve with manual handling. Moreover, today's labor costs make manual handling a questionable luxury which industry cannot afford.

The ideal objective would be to make a terminal so mechanized that loading and unloading operations could be made without the human hand touching a piece of cargo. Practically, this is a difficult objective to reach in the case of common carriers. The diversity of shapes and sizes of cargoes, and the great number of different destinations make complete mechanization hard to achieve.

However, in the case of many private carriers sending full truck loads of merchandise to a single distribution point, a high degree of mechanization has been achieved.

Fig. 1 is a typical example of such an installation. Merchandise comes off the production line and continues on conveyors that can be switched either to the warehouse or into a waiting truck.

Guide to Selection

Where consideration of material handling equipment is given, the principal question to be answered is, "What types of freight handling equipment should we buy?"

To provide a practical basis for evaluating freight handling equipment, DISTRIBUTION AGE has surveyed the nation's Class I motor



Fig. 1: Portable sections of skate wheel conveyor are extended into trucks and connect with fixed lines which serve storage and production

Some 89 per cent of common carriers participating in survey report they use hand trucks, followed by fork trucks, 58 per cent; portable conveyors, 42 per cent

carriers on the equipment they are currently using for freight handling. The results provide a good guide, not only for the transportation executive planning to build or modernize a terminal, but also for all personnel to check existing facilities to improve freight handling methods.

The accompanying table (Fig. 6) summarizes a list of the most common equipment used. The complete list includes all kinds of Jack Type Lifts (skid jacks, hydraulic hand trucks, etc.), Stackers, Hoists (overhead rail systems and fixed, chain and cable, manual and electric types), Yard Cranes of all types including Gantry, as well as such special equipment as

grain loaders, bulk liquid loading systems, and so on.

It should be explained that, in the average Class I terminal, more than one type of freight handling equipment is in use. A terminal may have, for example, several fork trucks, many hand trucks, some 4-wheel platform trucks, and a number of portable conveyors of the 10-ft roller skate type. On the other hand, there still are terminals that employ only hand trucks.

Actually, the type of operation dictates the type of handling equipment required. A terminal handling barrels or drums exclusively, for example, might find (Please Turn to Page 40)

Freight Handling

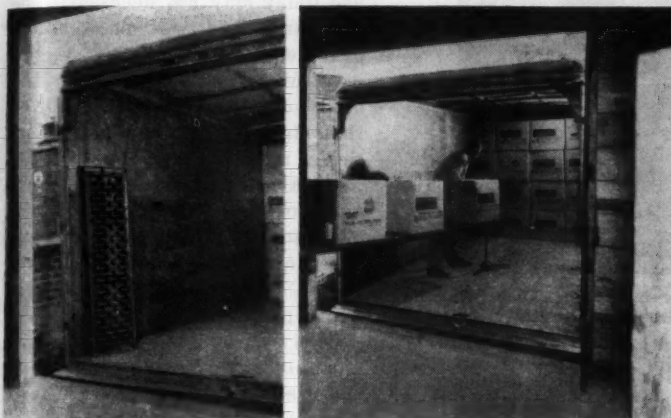


Fig. 2: Telescopic conveyor for truck loading (right) extends up to 10 ft, 2 in.; telescopes down to 4 ft, 4 in. for truck transport (left)

Fig. 6: Table lists handling equipment usage by percentages in six classifications. Groups appear from left to right in order of their popularity

	HAND TRUCKS	FORK TRUCKS	PORTABLE CONVEYORS	PLATFORM TRUCKS	LOW LIFT TRUCKS	TRUCK DRAG SYSTEM
STATES	USED BY -- PER CENT	USED BY -- PER CENT	USED BY -- PER CENT	USED BY -- PER CENT	USED BY -- PER CENT	USED BY -- PER CENT
ALABAMA	66.7	66.70	22.2	-	-	-
ARIZONA	100.00	66.67	66.7	-	33.33	-
ARKANSAS	100.0	40.00	80.0	80.0	20.00	-
CALIFORNIA	79.1	87.5	59.3	41.7	33.3	4.2
COLORADO	83.33	33.33	66.67	50.00	16.67	-
CONNECTICUT	83.3	66.6	61.1	61.1	44.4	5.5
GEORGIA	100.00	66.67	44.44	55.55	-	-
ILLINOIS	90.6	53.33	40.64	43.7	40.63	3.13
INDIANA	96.6	63.33	30.00	26.7	36.67	-
IOWA	90.9	54.55	9.09	63.6	18.18	-
KANSAS	100.0	50.50	25.00	25.0	25.00	-
KENTUCKY	100.0	66.67	66.67	66.7	33.33	-
MAINE	100.0	25.0	25.0	25.0	50.0	-
MARYLAND	77.77	55.55	77.77	66.67	44.44	-
MASSACHUSETTS	80.0	58.8	41.1	35.2	50.0	3.0
MICHIGAN	79.1	83.33	50.00	41.7	29.17	8.33
MINNESOTA	72.7	72.73	45.45	36.3	27.27	9.09
MISSOURI	93.8	50.00	43.75	43.8	12.50	-
NEBRASKA	71.43	42.86	57.14	14.29	14.29	-
NEW HAMPSHIRE	80.0	60.0	40.0	40.0	20.0	-
NEW JERSEY	96.30	66.67	44.44	33.33	40.74	3.70
NEW YORK	90.48	52.38	45.24	40.48	35.71	2.38
NORTH CAROLINA	92.31	61.54	30.77	30.77	7.69	7.69
OHIO	92.6	55.56	40.74	44.4	37.04	3.70
OREGON	100.0	60.0	40.0	100.0	-	-
PENNSYLVANIA	96.88	52.13	31.25	34.38	37.50	3.13
RHODE ISLAND	88.8	11.0	11.0	22.0	33.3	-
SOUTH DAKOTA	66.67	33.33	66.67	66.67	-	-
TENNESSEE	77.7	44.44	33.33	44.4	22.22	-
TEXAS	83.33	75.00	50.00	41.67	25.00	8.33
AV-DS	89.35	58.97	42.21	40.24	31.36	2.7



Fig. 3 (above): Survey shows hand trucks, in countless varieties, are most common

Fig. 4 (below): Stair-climbing hand truck used in conjunction with folding-step truck

Fig. 5 (extreme lower): Barrel skid, one of oldest known pieces of dock equipment



... Freight Handling

(Continued from Page 38)



Fig. 7 (above): Versatile platform truck handles most type loads, is easily maneuverable, can be wheeled by hand, in trains, or by drag line

Fig. 8 (below): Overhead truck dragging system in large Eastern terminal facilitates transfer of variety of goods in cross-dock operation

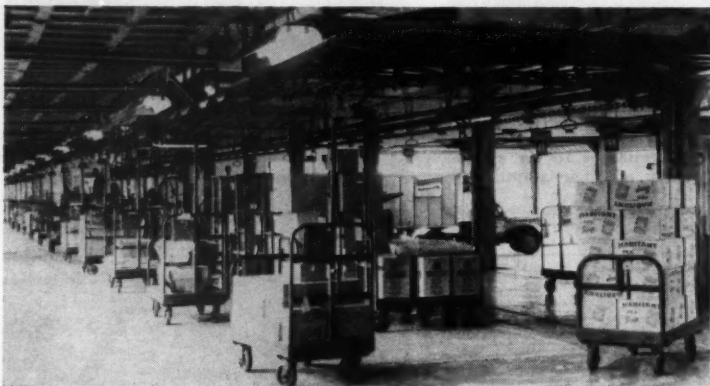
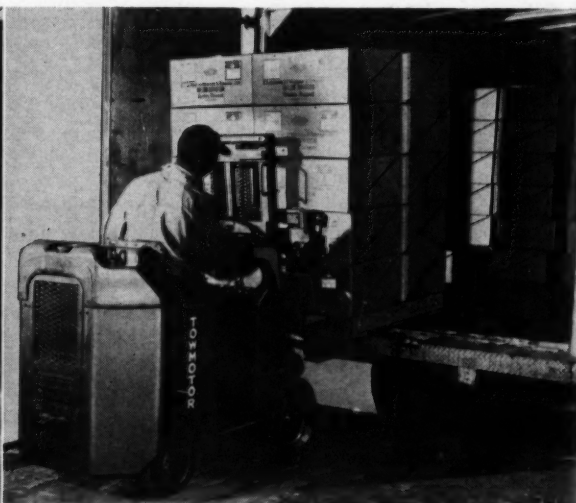


Fig. 9: Fork truck permits delivery of pallet loads directly from ship's hold to waiting truck or rail car



Fig. 10: Here use of fork truck eliminated loading difficulty found when truck bed extends above platform



that they could be palletized and handled easily with a fork lift truck. However, if a dock were narrow, there might not be sufficient room for fork truck operation. Under such conditions, a rail hoist system and hand trucks might be the answer.

The data shown in the accompanying table also emphasize the fact that equipment principally in use today may not necessarily be the same that will predominate next year.

As an example, the early 1953 study of this equipment showed that about 44 per cent of the nation's motor carriers used platform trucks, while 42 per cent used portable conveyors. The concluding study shows that 40.24 per cent now are using platform trucks and 42.21 per cent are using portable conveyors.

This indicates a slight gain for portable conveyors and a drop in the use of platform trucks. However, there is an increasing demand for platform trucks for use in trains and truck dragging systems, which probably accounts for the decrease in the use of the individual platform truck.

An explanation of the headings is necessary for a clearer picture of the equipment included in the tables. The heading Hand Trucks includes special as well as the

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conventional 2-wheel hand truck. Some of the special types include Appliance, Bag, Barrel, Cannery, Utility, Warehouse, etc.

The heading Fork Trucks includes all types of this conventional vehicle in the high lifting category. They are powered either by battery or combustion engine.

The heading of Portable Conveyors includes both the "live" and "dead" types. While many are in the "skate-wheel" category, the tabulations also include Apron, Belt, and Bucket in both the fixed and extendable types.

The Platform Trucks in the table cover the manual rather than the self-loading types. Included also are the casters as well as the larger wheel models. Generally, they are in the 4-wheel category although the 3-wheel types have been included.

As in the case of hand trucks, many different types are represented here. Some are boxed-in on four sides, others on three sides, and some have only end supports, one end or both.

The Low-Lift Truck category includes both the skid and pallet types in the manual and powered categories. They are both the ride type and non-ride or "walkie" types, and the lifting mechanism is actuated mechanically or hydraulically.

The category of Truck Dragging Systems has been included because of the increased current interest in this type of equipment. It is interesting to note that, while many consider this to be a recent development, these systems have been in use for over 25 years. The systems included in the table are both the overhead and in-floor types.

Space limitation has been responsible for reducing the tabulation of equipment to six types. However, for the record, it should be mentioned that two other types were reported in appreciable numbers, greater than the truck dragging systems. One of these groups of equipment includes all types of hoists, fixed and overhead traveling types. Included are manual as well as the power-operated types, employing either chain or cable for lifting, and having either pendant pushbutton or remote controls.

The next important category includes Yard Cranes of both the mobile and fixed types. A great number of truck operators also listed large numbers of several types of dollies. Included were Furniture, Lever, and Power Skid Types.

The table has been arranged by States to show local preferences. For example, while on the national average 89.35 per cent of

freight terminals use hand trucks, 94.4 per cent of the truckers in Wisconsin have this equipment. Also, more Wisconsin truckers use fork trucks than the national average. The same thing is true with regard to portable conveyors, platform trucks and truck dragging systems. However, fewer truckers in that state employ low-lift trucks than the national average.

Similar differences will be noticed in other states with respect to the various pieces of equipment tabulated. It should be explained that where 100 per cent figures are shown such as in Utah, Oregon, Kentucky and other states, this does not mean that these carriers use hand trucks and no other equipment. The figures mean that every trucker reporting from those states has that type of equipment in addition to other types of freight handling equipment.

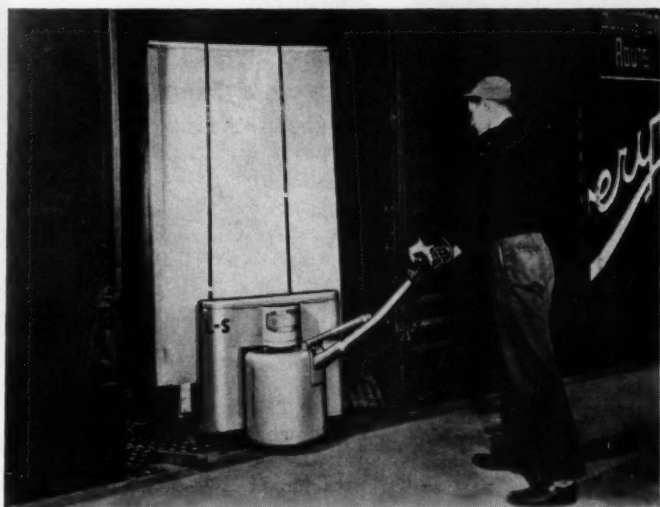
Only a small minority report the use of one type of equipment. The majority have two or three types of equipment although some fleet operators, probably the largest, show a great diversity, covering all those listed in the table as well as equipment not tabulated.

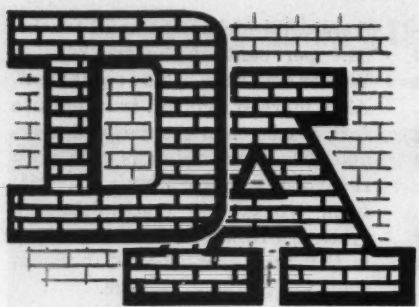
It may be presumed, for example, that the majority of carriers from Alabama find that the combination of hand trucks and fork trucks take care of their needs. In Arizona, more carriers find a need for hand trucks, and more for portable conveyors and low-lift trucks than the Alabama operators.

The final observation that can be made concerning freight handling equipment is that selection should be made to provide fast yet safe handling of all cargoes. A highway truck is profitable to its owner only when it is out on the road. All reductions in loading and unloading time contribute to their profitable use.

Finally, if handling costs in transportation and warehousing are high, there is but only one certain means of cutting these costs: The intelligent application of the best type of handling equipment available. In every known instance where cargo handling was mechanized, costs were considerably reduced. •

Fig. 11: Low-lift, walkie-type platform truck used with bridge plate permits box car entry, completely mechanizes loading and unloading





NEW PRODUCTS *and* EQUIPMENT

FOR FURTHER INFORMATION USE READERS' SERVICE

Warehouse Conveyor

Alvey Conveyor Mfg. Co. announces the development of a special conveyor system for warehouse and storage areas where



floor space must be conserved and aisles must be kept clear. Basically, the system consists of inclined and declined conveyors—arranged to raise and lower packaged merchandise to desired levels—with maximum convenience, unique storage-ability.

Circle 25 on Card Facing Page 49

Special Tread Compound

A new truck tire has just been introduced by the U. S. Rubber Co. It has a wide, rugged, five-rib tread, with extra-sharp tread edges and irregular grooves that give full traction. The new tire, with its special tread compound, is being made in sizes from 6.00-x16 with 6-ply rating through 10.00x22 with 12-ply rating, and is of heat-resistant, rayon cord

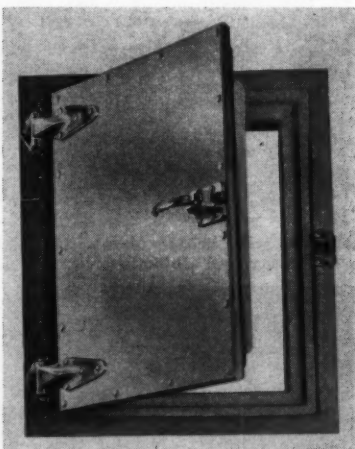


construction, with a special plastic-resin coating. It is also suitable for recappings. Double shock-pads absorb road shock.

Circle 26 on Card Facing Page 49

Fiberglass Vent-Door

A new reinforced-fiberglass ventilator door is now being produced by the U. S. Equipment Co., Inc. Made of fiberglass reinforced polyester resin, which is stronger than steel by weight, and lighter than aluminum, will not warp, expand, contract, rot, transfer odors,

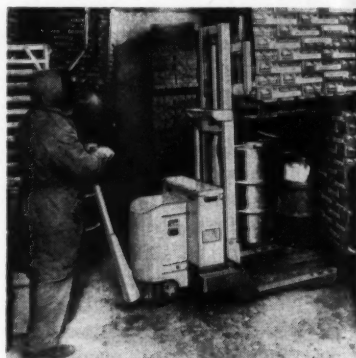


or absorb moisture. This glass fiber laminate was originally developed for military use. Features include the elimination of metal-to-metal contact, which permits virtually no temperature leaks. The vent-door frame, manufactured in several sizes, is of permanent, one-piece, all-plastic construction. The new door has 2 in. of insulation and is faced with a sheet of aluminum.

Circle 27 on Card Facing Page 49

'Ceiling Zero' Operation

Lift Trucks, Inc., recently introduced this new type hydroelectric truck with 60-in. lift. It is designed



especially to operate in close quarters with low headroom, as well as to operate efficiently at below-zero temperatures in refrigerators, trucks, and freight cars. Features include power unit with twin front-wheel drive, and a totally enclosed motor with a capacity of 2000 lb.

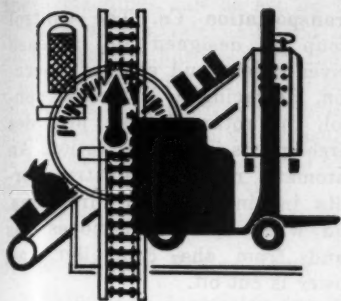
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Improved Tractor

New attachments and improvements on the four-wheel drive,



Model TM tractor include pusher and towbar plates, single or dual railway couplers, air compressor attachment, switchman's platform



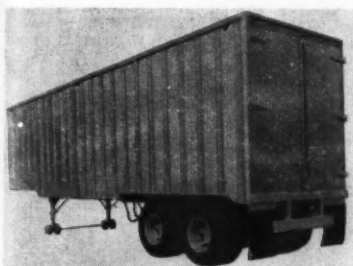
CARD....PAGE 49

and catwalk, hydraulically driven winch and four-wheel vacuum-booster brakes, according to an announcement by the Frank G. Hough Co. The four-speed, full-reversing transmission, torque-converter drive, and power-steering are standard. Pusher plates or towbar plates can be supplied on front or rear. A rear-mounted winch, hydraulically-driven, with a 30,000-lb line-pull is available.

Circle 29 on Card Facing Page 49

Aluminum Van

Andrews Industries has developed a new high-volume aluminum van with a 6-10 in. drop frame, plus increased height and width that makes possible additional cargo capacity. This new semi-trailer has 1½-in. upright posts on 18-in. settings which increase inside width

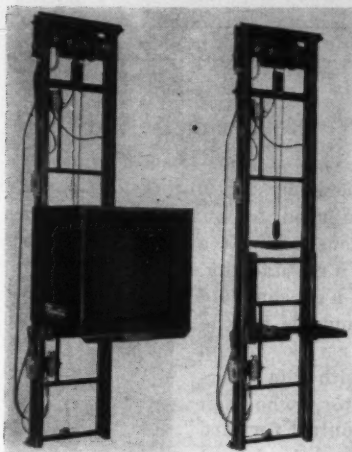


to 93 in., and permits maximum door openings of 91 in. Spacing of floor cross-members for fork-lift or standard loading is optional. The new van, which is available in exterior post models or with horizontally corrugated aluminum panels, increases cubic capacity, yet remains within legal length, width and height limits of all states.

Circle 30 on Card Facing Page 49

Platform-Type Hoist

A redesigned, vertical lift, electric platform hoist for moving goods vertically is being presented by the Rapids-Standard Co., Inc. The new unit is now available with a platform for use within one floor, with a cab for mounting in a hoist-



way for between-floors use, or equipped to lift and lower materials between levels of a gravity or power conveyor system. The lift is available with choice of lift speeds, with either 250 or 500 lb capacity. Models, with carriage travel up to 20 ft, are available. Upper and lower limits of platform travel are adjustable.

Circle 31 on Card Facing Page 49

Step and Handle Set

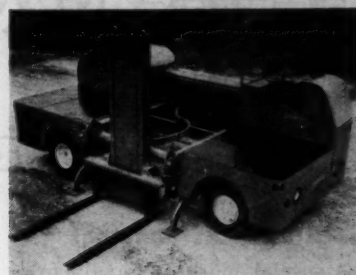
Narva Products, Inc., recently introduced a new step and handle set, made of steel, and cadmium plated. Rubber-tread steps are made to fit the foot, and the handles are large enough to allow a firm grip. It is stated that the new screw-on-type unit eliminates the use of long poles, ladders, or stools, and allows a minimum of 25 per cent more storage space on top shelves. One model has a rigid step. The other model has a flip-up step to be out of the way entirely.



Circle 32 on Card Facing Page 49

Side-Loader Redesign

A new, redesigned, side-loading fork truck, Model T-10-A, has been announced by the Baker-Raulang

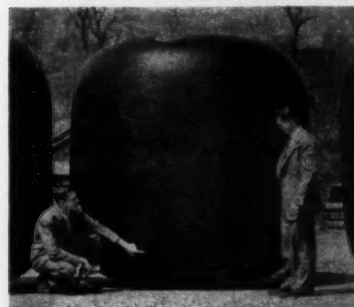


Co. The new truck is said to improve load distribution, better stability, and higher tractive effort. Features include a torque converter drive, and springing of all four wheels. Over-all height and width is 120 in. and 96 in. respectively.

Circle 33 on Card Facing Page 49

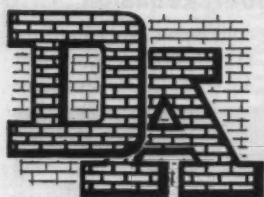
Bulk Shipment Container

A new way of handling bulk shipment of granular and powdery materials is provided by 500- and 2500-gal synthetic rubber and fabric containers developed by United States Rubber Co. The container can be collapsed after emptying for return and re-use. They are used for bulk shipment of chemicals, carbon black, starch, clay,



flour, sugar, malt, granular reclaim rubber, and many corrosive and hygroscopic materials. They reduce handling and packaging costs at the point of origin, and permit low-cost bulk shipment. They simplify receiving and handling by the user. The 370-cu ft or 2500-gal container is 8 ft in diameter and 8 ft high. Air or gas can be pumped into the filled container to provide additional rigidity during handling.

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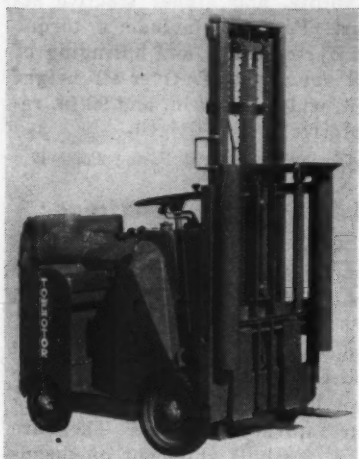


NEW PRODUCTS and EQUIPMENT

Continued from previous page

Hogshead Attachment

A special hogshead handling device, developed by **Towmotor Corp.**, has increased storage capacity

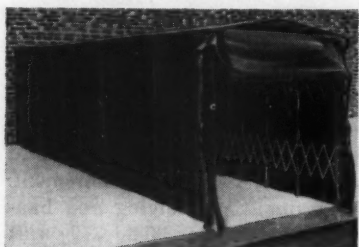


over former vertical position methods. In a picking up operation, the short forks are inserted, then the stabilizer arm is hydraulically lowered so its four hooks engage the upper rim of a hogshead.

Circle 35 on Card Facing Page 49

Loading Dock Shelter

A new loading dock shelter has been made available by **Atlas In-**



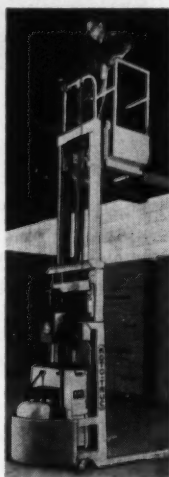
dustries. Rolling on special wheels, it extends to truck or box car, or can be used to connect adjoining plants. When not in use it folds back and can be easily stored. The model is completely portable.

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Walkie Truck Design

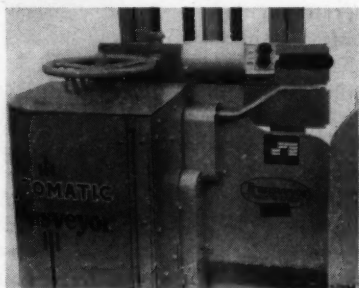
This dual-purpose unit, introduced by the **Moto-Truc Co.**, can be used for maintenance operations as well as a standard lift for stacking. The complete controls for the truck go up with the operator, who can control forward and backward movement or up and down hydraulic lift from the top of the truck. Maximum height can be made to meet required specifications. Unit has two speeds for both forward and backward movement, and automatically eliminates all but the slow speed once the lift is over four ft in the air. Minimum width of the new unit is 36 in. Power is supplied by a 12-volt battery.

Circle 37 on Card Facing Page 49



One-Hand Control

One-hand, finger-span grouping of controls featuring a new rotary



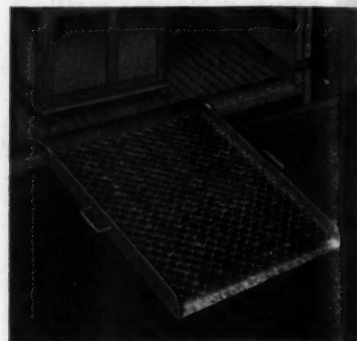
speed controller on fork trucks was announced recently by **Automatic**

Transportation Co. The control group is designed to increase driver safety and ease of operation. Replacing a foot-pedal control, the rotary handle provides three speeds in each direction. An automatic return to neutral permits inching in both directions, and when operator removes his hand from the controller, all power is cut off.

Circle 38 on Card Facing Page 49

Small-Incline Ramp

Bustin Firm Grip Grating Corp. announces a new loading ramp, especially designed for use in

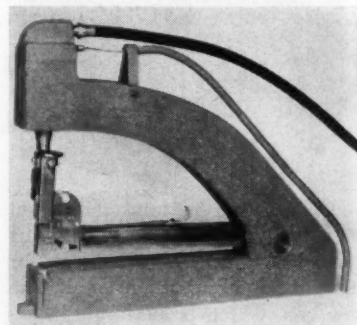


small-incline loading. It is lighter and sturdier than steel plates, and provides safe walking where adverse conditions prevail. The platform is made in two standard sizes, 30x27 in. wide and 30 in. long by 30 in. wide. Other sizes also are available.

Circle 39 on Card Facing Page 49

Air-Driven Stapler

Model KAD, a new air-driven, foot-operated bench stapler, has been announced by **Bostitch**. This



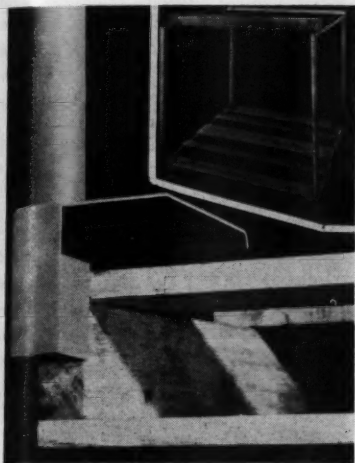
15-lb stapler can be used for fastening papers, merchandise, envelopes, bags, and can also be used for light assembly work. A wide variety of heads and staple sizes are available. Two or more of

these machines can be set up to operate as a single unit, and as each machine has its own individual air cylinder, no central adjustments are required to obtain equal pressure. 60 lb air pressure is average. When light staples are used, 25-30 lb is sufficient.

Circle 40 on Card Facing Page 49

New Design Pallet-Stak

Wilkinson & Associates has introduced a new unit designed for low cost expansion of storage



space without the necessity of adding storage facilities. It converts standard flush pallets into rigid stacked storage units, protects the materials on the pallet and makes it possible to support a stacked load, with no waste space.

Circle 41 on Card Facing Page 49

New Framing Material

Ainsworth Mfg. Corp. announces the development of a new framing material. The mezzanine platform illustrated, the steps, and smaller

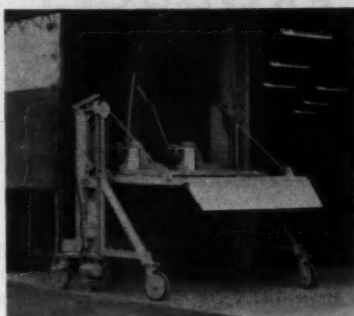


platforms, are made with this versatile, framing material. It is easily adaptable, and with its three basic parts units, can be dismantled and re-used to meet entirely different requirements.

Circle 42 on Card Facing Page 49

Portable Loading Dock

A new portable loading dock, introduced by the Raymond Corp., facilitates carrier loading and un-

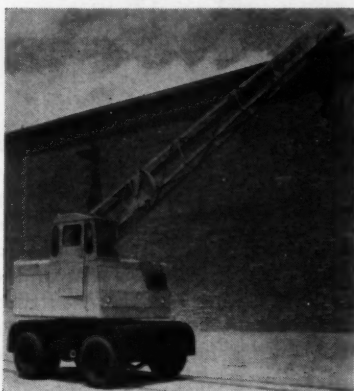


loading from ground level. The new loading dock is said to eliminate the need for permanent loading docks, truck-wells, or elevators. The elevating platform is raised and lowered by a hydraulic elevating mechanism. It has a capacity of 6,000 lb, and will raise loads up to a maximum height of 56 in. The unit can be used for loading or unloading inside or outside the plant, and folds up for storage purposes when not in use.

Circle 43 on Card Facing Page 49

4-Ton Crane

A new crane introduced by Coles Cranes, Inc., is designed to lift 4 ton at 10-ft radius. It fol-

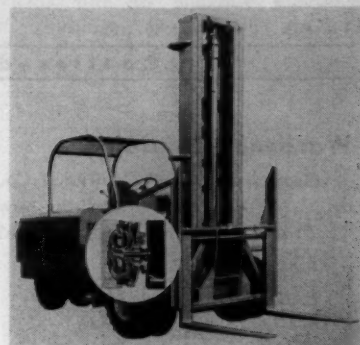


lows general Coles design principles such as gas-electric operation, and includes such features as self-resetting limit switches on hoist and boom hoist motion, automatic overload and cut-out and reversible steering. It measures 7 ft 6 in. by 11 ft 6 in., features clutchless operation, and is capable of lifting its full rated load throughout the circle of swing.

Circle 44 on Card Facing Page 49

Torque Converter Drive

Availability of long-wheelbase fork lift trucks, with hydraulic torque converter drive, has been announced by the Gerlinger Carrier Co. Capacities are 12-, 15-, 16-, 18-, 20-, and 22,000 lb. The manufacturer states this is the first

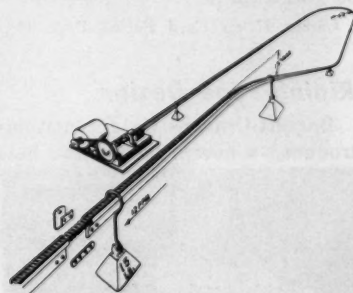


time that the torque converter has been available for heavy-duty lift trucks. Advantages are said to include clutch wear reduction, drive system protection, maximum power and torque for starting without clutch slipping, and no stalling or lugging of engine.

Circle 45 on Card Facing Page 49

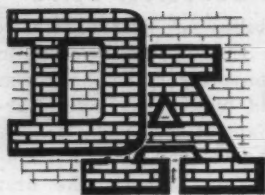
Handles Light Loads

Monoflo is a simple, economical conveyor manufactured by M-H Standard Co. for handling light loads along paths which can incorporate both horizontal and ver-



tical bends. Basically, Monoflo consists of a flexible high carbon steel screw of approximately 3/4 in. dia. which turns in a metal retaining rail. It handles 15 lb maximum unit loads per foot of conveyor and has fixed or variable speeds within a range of 0 to 12 ft per minute. Monoflo is capable of 4-ft radius horizontal and vertical curves and vertical inclines up to 15 deg.

Circle 46 on Card Facing Page 49
(Please Turn Page)



NEW PRODUCTS and EQUIPMENT

Continued from previous page

Wardrobe Container

Chippewa Paper Products Co., Inc., recently developed a new wardrobe container, consisting of

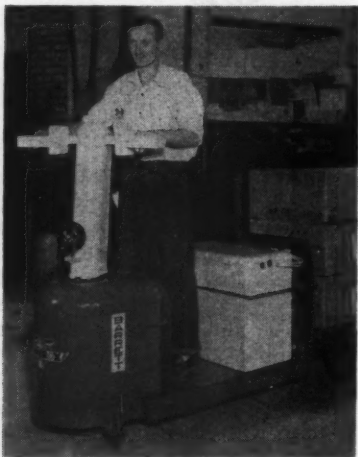


two separate units: a low-cost, easily-assembled, wood-cleated frame that can be re-used, and a replaceable corrugated shell. Shells may be ordered separately. Features include a clothes-hanger lock bar and all-corrugated, smooth interior surfaces. No wood, nails or staples can come in contact with contents. The new container accommodates standard clothes bags. Inside dimensions are 30 x 57 x 22 in.

Circle 47 on Card Facing Page 49

Riding-Type Design

Barrett-Cravens Co. recently introduced a new model of the bat-



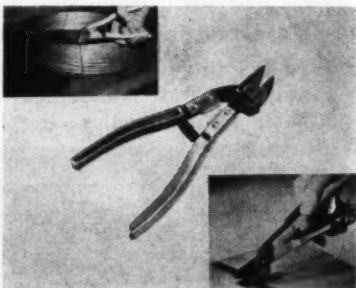
tery-powered lift truck which provides for the operator riding

instead of walking. The speed-up movement of more materials per man is the aim of this new design. Forward and reverse push-button controls and brake controls are located in the handle. Truck has four speeds forward and three reverse. The new unit lifts and travels electrically. The new riding feature is also available for pallet trucks.

Circle 48 on Card Facing Page 49

Double-Duty Cutter

A new strap and wire cutter, Model 503, has been manufactured by A. J. Gerrard & Co. A double-



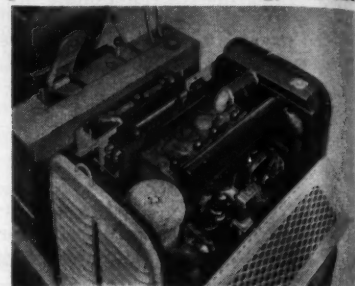
duty set of cutting blades on the new cutter will sever flat strapping at the mouth of the tool and round strapping in a second set of cutting surface near the rear of the cutter head. This dual-cutting, light-weight tool can cut strap as heavy as $\frac{3}{4}$ in. x .035 or 12-gauge wire.

Circle 49 on Card Facing Page 49

Interchangeable Unit

Ready-Power Co. has announced a new Model HA-3 to its line of gas-electric, diesel-electric, and L.P.G.-electric power units. It is designed for quick installation on 2,000 to 5,000-lb sit-down-type electric trucks without need for seat alteration. New design features include instrument panel

protection, compact compartments outside the housing, the muffler placed inside the housing, and the

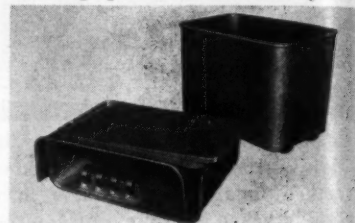


new hinged cover and side plate permitting easy access to engine accessories. These units are interchangeable and can be quickly installed or removed.

Circle 50 on Card Facing Page 49

New Floor Truck

A complete line of steel floor trucks designed for industrial use has been introduced by the Kennett Equipment & Machinery Co.

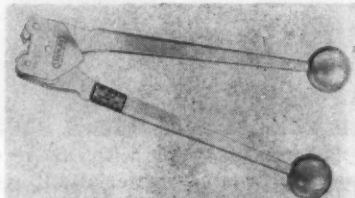


Five standard sizes are available: 36x22x24 in., 40x24x24 in., 42x30x28 in., 48x30x28 in., 56x22x28 in. Features include angle base frames, channel caster supports, roller bearing steel casters, and ease of assembly and handling. Aluminum or stainless steel construction also is available.

Circle 51 on Card Facing Page 49

Advanced Design

The Stanley Works announces that the sealer tool has been re-



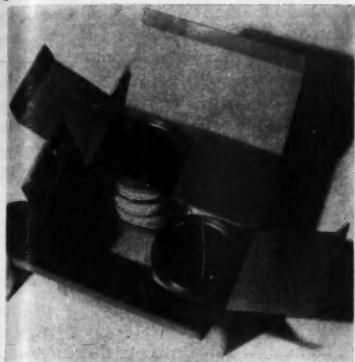
styled and perfected. According to the manufacturer, easy sealing of $\frac{3}{8}$ -, $\frac{1}{2}$ -, $\frac{3}{8}$ -, and $\frac{3}{4}$ -in. steel strapping can be made on all types of products. A heavy zinc plating has

been placed over all metal parts, and the plastic handles have been replaced with handles of ethyl cellulose.

Circle 52 on Card Facing Page 49

Product Protection

A new corrugated shipping box, designed by **Hinde & Dauch**, eliminates the necessity for interior packing pieces. Both top and bot-



tom flaps fold in to form short, double-thickness, protective partitions. The manufacturer claims that elimination of extra interior separators has facilitated package-stock handling and has trimmed set-up and packing time one-third.

Circle 53 on Card Facing Page 49

Double-Deck Truck

A new double-deck materials handling truck has been developed by **Ironbound Box & Lumber Co.** These steel-frame trucks are designed to permit hauling several units. Semi-automatic couplers



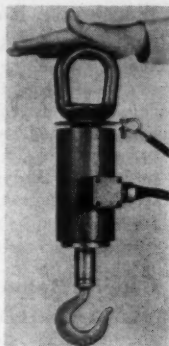
permit quick coupling and uncoupling. Plywood shelves are used and semi-steel, rubber-tired, or molded-plastic wheels can be provided. The trucks are available in any size. Only one prime mover is required for hauling or for distribution of materials.

Circle 54 on Card Facing Page 49

New Crane Scale

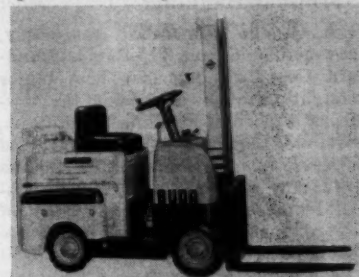
Addition of three new standard sizes of SR-4 crane scales in small capacities is announced by **Baldwin-Lima-Hamilton Corp.** The new sizes are ½-ton, 1¼-ton, and 2½-ton. Standard sizes now range from ½-ton to 25-ton. Direct-reading, load-indicating instruments may be mounted in crane cabs, on carts, or in stationary positions. Cable reels provide freedom of movement. High overload capacity protects calibration of the load-sensitive units. Over-all length of scales range from 18½ in. to 5 ft. The new scales, based on the electrical principles of bonded resistance wire strain gages, were developed to provide high accuracy and mobility.

Circle 55 on Card Facing Page 49



Spark-Proof Lift Truck

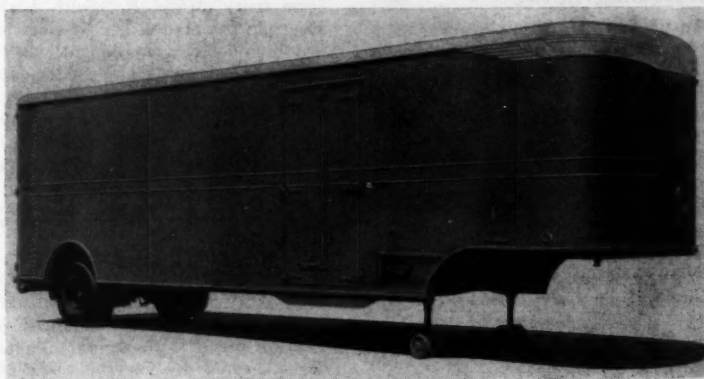
The **Buda Co.** has developed a series of special spark-proof, diesel-powered fork-lift trucks in 3,000 and 4,000 lb capacities. The manufacturer states that this new feature completely eliminates hazards due to possible electrical sparks. Battery wiring, starters,



generators, and instruments electrically controlled are not used in these new trucks. The engine is started by a hydraulic motor. Features also include a water-cooled exhaust manifold and a water muffler. The new trucks are available with static-conductive tires and a protective wood bumper on the truck body.

Circle 56 on Card Facing Page 49

Fruehauf Presents New Single-Axle Van



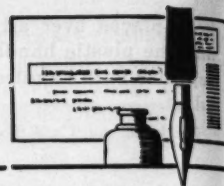
Circle 57 on Card Facing Page 49

Fruehauf Trailer Co. has just announced its new warehouseman's van, Model FW-1, which is said to provide greater capacity, with improved construction and operating characteristics. It is made in five lengths, from 27-35 ft, with capacities from 1,535 cu ft to 2,035 cu ft. Features include four rows of recessed cleats back of the drop and three rows ahead of the drop. The doors are further forward, and the floors are

hardwood tongue-and-groove, with undercoating. Plywood lining, with insulation, is employed, and the rear doors are full length with plastic gaskets. The side doors are double, providing an opening of 45 in. Options include a full-length steel sub-floor in place of undercoating, and double-acting 45½-in. outside tailgate and double roadside doors. Cubic footage markings, in increments of 100 cu ft, are also available.

FREE

Literature



Terminal Handling

A 4-page illustrated case-study, now available from **The Rapids-Standard Co., Inc.**, describes how motor freight terminals are using the tow-truck method of handling to cut costs, eliminate scrambled shipments, and increase tons-per-man-hour. Details of a new type of demountable industrial wheel, with a costs saving of approximately 30 per cent, also are available.

Circle 70 on Card Facing Page 49

Pallet Truck

A circular describing the new light-weight hydraulic pallet truck for use with single-face pallets, double-face pallets, and skid platforms is available from **Lewis-Shepard Products, Inc.** Details of construction, engineering, installation, and complete specifications of the 2,000-lb capacity hand truck are included.

Circle 71 on Card Facing Page 49

Tin-Holding Device

An electro-magnetic tin plate holding attachment for fork lift trucks which doesn't interfere with other pallet handling operations was announced by the **Automatic Transportation Co.** The new device consists of a magnet placed between the forks parallel to the fork backs. The attachment, which is now available for all fork lifts above 1,500-lb capacity, receives its power from the truck's electric system.

Circle 72 on Card Facing Page 49

Fork Controls

Swing-Shift hydraulic fork controls now are available for the RC-150 and RC-160 truck models, as described in a release issued by the **Hyster Co.** It requires, however, the use of RT-100/150 load arms. This unit is not available for the SC-180.

Circle 73 on Card Facing Page 49

Lift-Truck Roundup

A new catalog has been issued by the **Gerlinger Carrier Co.** The catalog illustrates the variety of products made by the firm in every size, weight, and load capacity.

Circle 74 on Card Facing Page 49

Warehouse Bookkeeping

A booklet, describing a new book-keeping machine, has been published by **Remington Rand.** The new machine is designed in relation to warehouse methods and operations. Features include simplified methods, comprehensive analysis, bookkeeping control, and accuracy.

Circle 75 on Card Facing Page 49

Battery Maintenance

A new, technical training manual on lead-acid storage batteries for electric industrial truck use has been announced by **Gould-National Batteries, Inc.** This 44-page, illustrated book has been designed to enable users of battery-powered industrial trucks to organize battery maintenance training programs in their own plants.

Circle 76 on Card Facing Page 49

High-Lift Truck

A 4,000-lb capacity, high-lift platform truck, Model E-2, with 4-wheel steering, powered either by electric or gasoline-electric equipment, is detailed in a new 4-page folder issued by **The Elwell-Parker Electric Co.** The truck comes in non-telescoping and telescoping models.

Circle 77 on Card Facing Page 49

FILMS

Film Catalog

Association Films announces publication of its 40th annual film catalog, *Selected Motion Pictures.* More than 1,400 free-loan and rental films are described. A wide variety of films is available, including travel, sports, homemaking, health, safety, science, and industry. Also listed in a separate section, are films prepared by **Teaching Film Custodians.**

New Safety Films

The **National Safety Council** announces two new safety films, *Take Time to Live* and *If You Took Your Family to Work.* The films run 12 minutes each, and are available in 16mm sound movies, and 35mm sound slidefilms.

Shipping Containers

A release describing development of a light-weight aluminum shipping container, has been published by **Brown Trailers, Inc.** Constructed the same as standard aluminum trailers, the container is detachable from its special chassis by releasing six tie-down bolts. The van, with no under-structure, can be transferred to a standard railroad flat car or an ocean-going barge.

Circle 78 on Card Facing Page 49

Trucking System

An illustrated publication of the **Edison Storage Battery Div.,** of **Thomas A. Edison, Inc.,** describes the advantages of powered walkie trucks in reducing the time required to receive, stock, and deliver equipment, and the use of specially equipped reach-fork trucks for speeding the handling of hot loads out of reduction furnaces.

Circle 79 on Card Facing Page 49

Fire-Fighting Unit

An illustrated release, describing a new fire extinguisher cart, has been issued by the **American-LaFrance-Foamite Corp.** The new cart is designed to station various combinations of dry chemical, carbon dioxide, and vaporizing liquid-type extinguishers at strategic locations, and for transporting them easily to the scene of a fire. There is no lifting from wall hangers. Features include one-man operation.

Circle 80 on Card Facing Page 49

Invitation to Industry

A new book, published by the **Port of Tacoma,** describes the opportunities afforded by the Tacoma area, and the Port of Tacoma industrial development district. The book gives pertinent facts, particularly as related to industrial opportunities.

Circle 81 on Card Facing Page 49

New Case Studies

Reports on engineered application of monorail equipment are available in a new series of case studies, published by **American MonoRail Co.**

Circle 82 on Card Facing Page 49

For prompt service, use the postage-free postcard provided here for your convenience in securing **FREE LITERATURE** and **NEW PRODUCTS** information described in this issue of **DISTRIBUTION AGE**. All material **FREE**, unless otherwise noted, as in the case of text books and some pamphlets.

Bulk Container

An illustrated booklet, describing a container designed for the efficient handling of bulk materials, has been prepared by **Kaiser Nest-A-Bin Division**. This new aluminum container is claimed to reduce labor and handling costs, and reduce freight costs through the return of empty containers, which may be disassembled and nested one within the other.

Circle 83 on Card Facing Page 49

New Model Tractor

New bulletins, T-201 to T-204, describing the new electric tractor, Model 550, have been issued by **Mercury Mfg. Co.** Features of the 4-wheel model, and the twin-3-wheel model, plus detailed specifications and illustrations, are included in the bulletins. A line drawing shows the complete dimensions.

Circle 84 on Card Facing Page 49

Floating Dock Ramp

A new, illustrated catalog sheet, detailing the manual floating, 10,000-lb capacity hydraulic adjustable ramp for loading docks, now is available from **Rowe Methods, Inc.** The ramp is positioned by push-button control, and is available with stationary or retractable arms.

Circle 85 on Card Facing Page 49

Truck Crane

A new bulletin covering the P&H Model 55 truck crane has just been published by **Harnischfeger Corp.** This 16-page, illustrated catalog reports on the design and features of this machine. Lifting capacity is 7 tons, and shovel capacity is 11 cu ft. The crane is completely convertible for all services.

Circle 86 on Card Facing Page 49

Automatic Doors

The **Clark Door Co., Inc.**, has published a new booklet describing automatic doors for industrial use. These electrically-operated doors are furnished in completely packaged units, consisting of doors, motor, and operating mechanism, and hardware.

Circle 87 on Card Facing Page 49

Floor Surface Hardener

Walter Maguire Co., Inc., issued a release announcing the availability of type SH cortland emery aggregate for surface-hardening concrete floors. The new product is 100 per cent natural emery, and includes aluminum oxide and iron oxide. It is designed to give non-absorbent, non-dusting, and non-slip qualities to concrete flooring.

Circle 88 on Card Facing Page 49

Low-Lift Platform Truck

Illustrated bulletin P-1038A, published by **The Yale & Towne Mfg. Co.**, gives dimensions and specifications on the 4,000-lb. and 6,000-lb capacity low-lift electric platform trucks. Features include a direct gear drive with enclosed gears operating in an oil bath.

Circle 89 on Card Facing Page 49

BOOKS

Pallets In Industry

A new, technical handbook entitled *Pallets and Palletization*, prepared for industry which utilizes modern methods of materials handling in manufacturing, warehousing, and transportation operations, is now available. A handbook prepared on pallets and their application to industry, it includes all necessary technical information, the use, maintenance and inspection of pallets, construction, and specifications. A glossary of terms and list of government specifications are included. **National Wooden Pallet Mfg. Assn.**, 215 Barr Bldg., Washington 6, D. C., \$1.

Specifications Report

A report on the standard specifications for containers and pallets, recommended by the **Petroleum Packaging Committee of Packaging Institute**, is now available. Known as *Report No. 1 of the Petroleum Packaging Committee*, it represents the recommendations of the principal users of steel drums, motor oil, and grease cans. **Packaging Institute**, 342 Madison Ave., New York 17, N. Y., \$1. (Individual standards may be purchased at \$0.50 per copy.)

All-Purpose Tapes

A new 12-page illustrated brochure, which describes the flexibility of self-sticking tapes in saving time, money, and facilitating better packaging, is available from the **Permacel Tape Corp.** The 2-color brochure relates the uses and advantages of the different types of packaging tapes, including cellophane, strapping, cloth, paper, acetate fiber, and plastic tapes.

Circle 90 on Card Facing Page 49

Handling System

Towmotor Corp. has prepared a booklet regarding a new, fast and flexible handling system. It is claimed the use of fork-lift trucks, to replace hand trucks formerly used, produces lower handling and loading costs, and increases production and storage space.

Circle 91 on Card Facing Page 49

Tank Trailer Repair

Fruehauf Trailer Co. has published a manual on tank trailer repair. The 31-page, illustrated manual gives complete data on the repair of tanks, and information concerning the handling of various types of tank cargoes.

Circle 92 on Card Facing Page 49

LP-Gas Conversion

The **American Liquid Gas Corp.** has published a new brochure which explains in detail the simplicity of converting materials handling equipment to LP-Gas operation, including a recently developed series of conversion kits designed for all type trucks.

Circle 93 on Card Facing Page 49

4-Way Ply-Fold

A plywood crate, new in design and construction, which offers greater protection for products, faster assembly, low cost, and less storage space, is claimed and described in a brochure offered by the **Atlas Plywood Corp.**

Circle 94 on Card Facing Page 49

New Carburetor

A series of illustrated leaflets describing the various models, uses and advantages of the valve-metering type carburetor, has been issued by the **Century Gas Equipment Co.**

Circle 95 on Card Facing Page 49

Truck Accessories

A new, illustrated book on attachments, tools, and accessories for industrial trucks, has been released by the **Hyster Co.**

Circle 96 on Card Facing Page 49

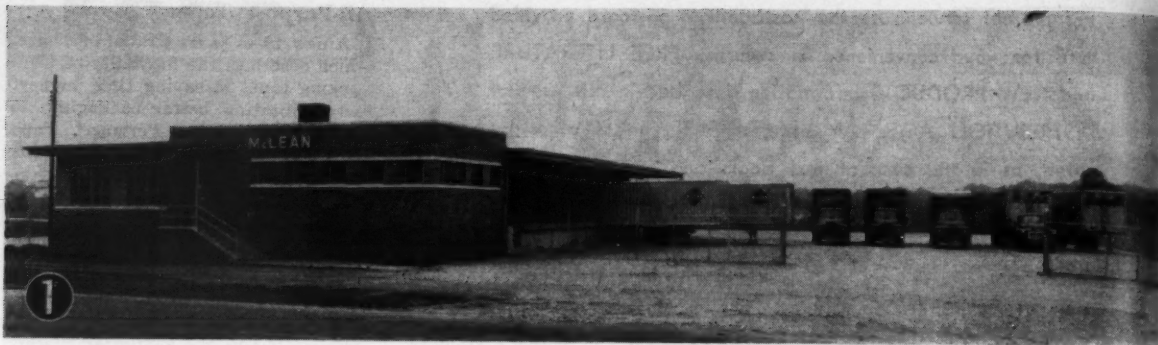


Fig. 1: McLean's Anderson, S. C. Terminal represents the single-story type

Fig. 2: Great Southern terminal combines 1-story dock, with 2-story office

Fig. 3: PIE Kansas City terminal runs parallel to street on long, shallow lot

Fig. 4: Eastern Freight Ways, Carlstadt, N. J., terminal centered on lot



Yard Layout and B

ONCE THE site for a new terminal is selected (See Page 23), the carrier must lay out those various facilities which make the complete terminal installation.

The first consideration is type of building — single- or multi-story. The single-story type usually is preferred where land is available at reasonable cost. Multi-story buildings ordinarily are utilized in downtown areas, where land is scarce and high priced.

Land values being equal, the single-story building claims several advantages over multi-story. It provides better light and ventilation, facilitates lay-out and expansion, eliminates waste space in elevator shafts and stair wells, provides unlimited floor load capacities, provides for more efficient employee supervision, presents lower over-all operating costs, and has the advantage of lower construction costs.

Listed as disadvantages of single-story buildings are higher maintenance costs because of the large unbroken roof area, and more expensive heating. The heating angle is minor, however, since even in severe winter climates terminal operators generally provide only enough heat to remove chill.



Building Types

Selection of a uni- or multi-story building and the choice of dock position, apron widths, and location of shop, fuel and service station, and weighing area have decided effect on terminal operating efficiency

A careful analysis of all factors should be made, in selecting a single story design, before deciding on single story throughout, or single-story dock with multi-story office. Both types are illustrated in Figs. 1 and 2.

Dock Position

Placement or position of the dock on the lot is dictated by a combination of several factors. Assuming acceptance of the island type dock, it is desirable to lay out the dock with its main axis in the direction of prevailing winds. This is especially important in areas of heavy snow or rainfall. To take advantage of natural lighting, it is generally accepted that the length of the dock should run east and west.

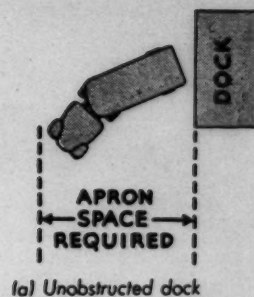
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By Roy H. Stewart

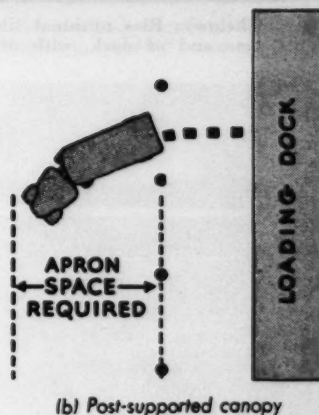
Secretary
The Operations Council
American Trucking Associations, Inc.

Fig. 6: Table II from Fruehauf study lists minimum apron space dimensions

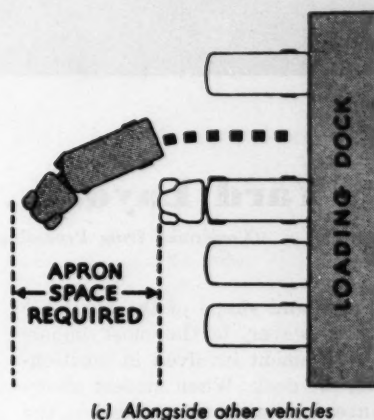
Length of Tractor-Trailer	Width of Position	"Apron" Space
35'	10'	46'
	12'	43'
	14'	39'
40'	10'	48'
	12'	44'
	14'	42'
45'	10'	57'
	12'	49'
	14'	48'



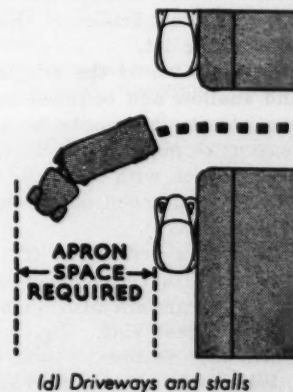
(a) Unobstructed dock



(b) Post-supported canopy



(c) Alongside other vehicles



(d) Driveways and stalls

Fig. 5: Fruehauf study illustrates apron widths in various situations



Fig. 8 (above): At the Watson terminal, in Peoria, Ill., shop is located adjacent to the office at end of dock

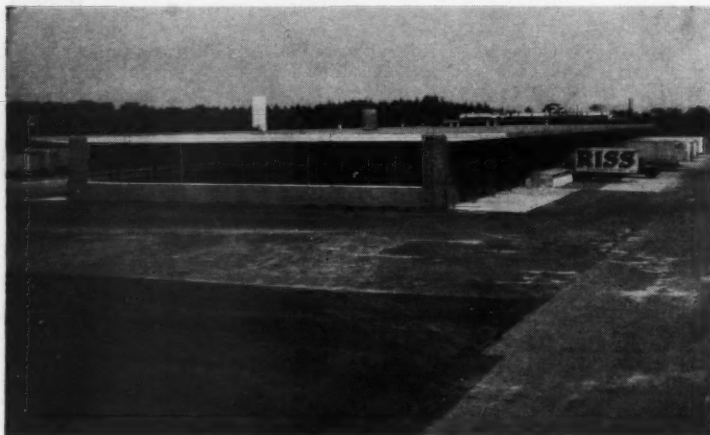


Fig. 7 (below): Riss terminal illustrates shop location at extreme end of dock, with office at the other end

Yard Layout . . .

(Continued from Preceding Page)

Size and shape of the available lot, however, is the most important element involved in positioning the dock. When modest allowances are made for expansion, the length of the dock generally will have to run parallel to the long side of the lot.

In cases where the site is long and shallow and bounded by only one street, it usually is advantageous to place the dock parallel to the street, with city pick-up and delivery equipment berthed on the street side.

Receiving berths for trucks of shippers, drayage companies, and interline carriers also should be on the street side. Fig. 3 illustrates this feature.

Where the site is narrow and deep, the dock might best be placed perpendicular to the street,

with city equipment berthed on the side nearest the entrance. The entrance should be placed to create a counter-clockwise flow of traffic.

On extremely large lots, the dock might be satisfactorily placed in either direction, with weather and illumination the most important factors. Here again city equipment should be berthed on the entrance side, and the entrance so located as to create counter-clockwise flow. The large site is illustrated in Fig. 4.

Apron Widths

Unobstructed maneuvering to and from the dock speeds service, cuts operating costs, and reduces maintenance costs resulting from damaged equipment. For these reasons, apron width require-

ments are of extreme importance.

A study conducted by Fruehauf Trailer Co. shows that required maneuvering space is largely dependent on three factors—over-all length of the unit, width of the position in which the vehicle must be placed, and turning radius of the truck or tractor.

The test was worked out with standard equipment handled by experienced drivers. Since a high average turning radius was used to provide a margin for differences in equipment, variable factors were over-all length and position width. As in all cases, apron space was measured from the outermost part of all vehicles or from any other possible obstruction in the area.

In the case of the single-position unobstructed dock Fig. 5 (a), the distance would be measured straight out from the dock. However, if a canopy or roof, supported by posts (b) should be present to protect the loading area, the distance would be measured out from the posts. If it is necessary to spot a trailer along side another vehicle (c), the distance would be measured from the outermost point of the vehicle obstructing the maneuver. When a stall or driveway is involved (d), the distance would be measured from the outermost obstruction, such as a curb, pole, or vehicle, etc.

To facilitate planning, a table of dimensions (Fig. 6) has been prepared as a guide.

Figures in the table do not in-

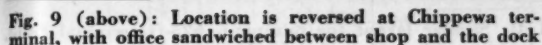
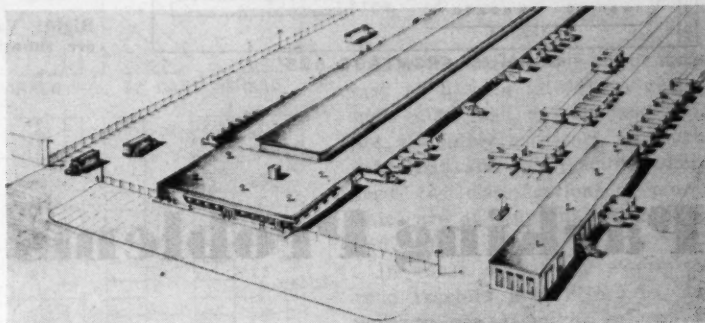


Fig. 10 (below): Southern Plaza Express, St. Louis, has separate shop facilities, spotted near entrance



From these findings and from interviews with leading transport and traffic men, the Fruehauf study points out that the optimum width allowed for each vehicle against the dock is 12 ft. The Drake study supports this contention (**Manual For Planning and Operating Terminals, Drake, Startzman, Sheehan and Barclay**):

"A 12-ft position will give a palletized dock operation 30 per cent more storage space than a 10-ft position. It requires less apron width. It allows equipment to be serviced or spotted. During
(Please Turn to Page 58)

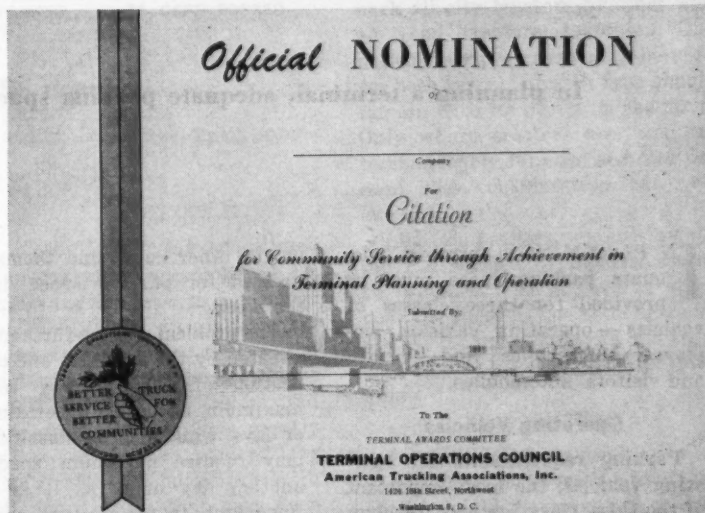


Fig. 11 (above): Official nomination for Terminal Citation, sponsored by Terminal Operations Council

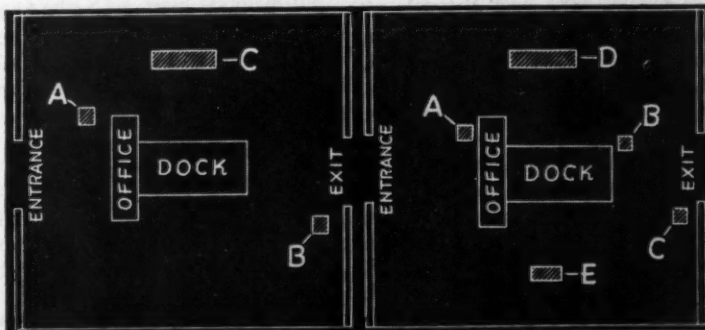
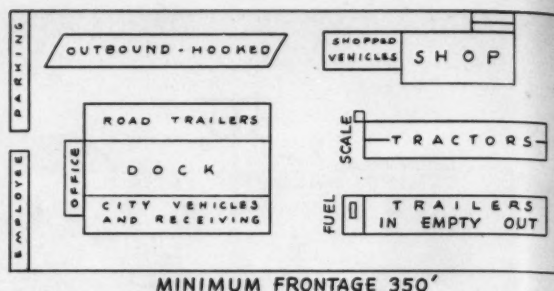
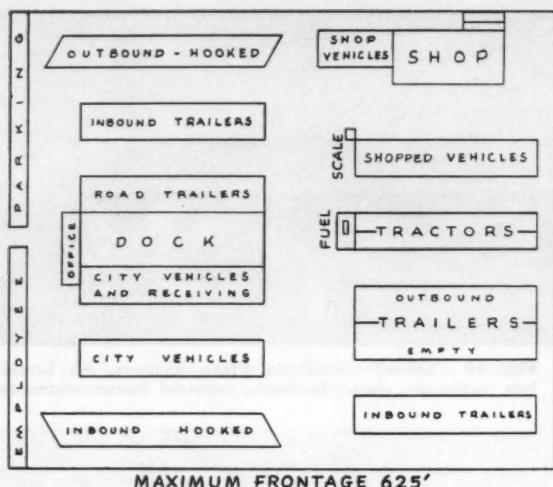


Fig. 12 (right): Possible fuel and trip service area locations—A. Near entrance. B. Near exit. C. As separate facility or combined with separate shop

Fig. 13 (extreme right): Possible scale locations—A. At office end. B. At open end of dock. C. At exit. D. Combined with fueling. E. Separate



Above: Basic layout for model truck terminal with a minimum frontage of 350 ft, including employee parking

Left: Similar layout for minimum 625-ft terminal front, providing more space for further segregation of vehicles

Right: Various methods of laying out a 90x100-ft lot are shown in this Associated Retailers of Indiana chart

Parking Problems in Terminal

In planning a terminal, adequate parking space must be provided for all vehicles

IN PLANNING a terminal, adequate parking space must be provided for three classes of vehicles — operating vehicles, employees' automobiles, and officials' and visitors' automobiles.

Operating Vehicles

Parking requirements for operating vehicles, the most important of the three classifications, involves five sub-classifications: Trailers, tractors, tractors and trailers hooked for over-the-road dispatch, city equipment, and shop and road service vehicles.

The area required to accommodate each type depends primarily on the maximum number of each to be simultaneously parked. In most operations the parking problem is at its peak during week-ends. Especially is this true at origin terminals.

End-of-the-line terminals and certain intermediate terminals may,

on the other hand, find themselves pressed for parking space during the week.

The problem may be further complicated by the fact that one classification of vehicles may require maximum space on a certain day or days, while another classification may require maximum space on another day or days. It is quite important, therefore, that peak requirements for each classification be carefully ascertained.

To these findings should be added a reasonable allowance for expansion. Resulting figures then should be utilized in finding and locating the parking areas for each of the various types.

Trailers

Having ascertained the maximum requirements for each type of vehicle, the next step is to locate the parking areas for each type. Since each type vehicle may be destined

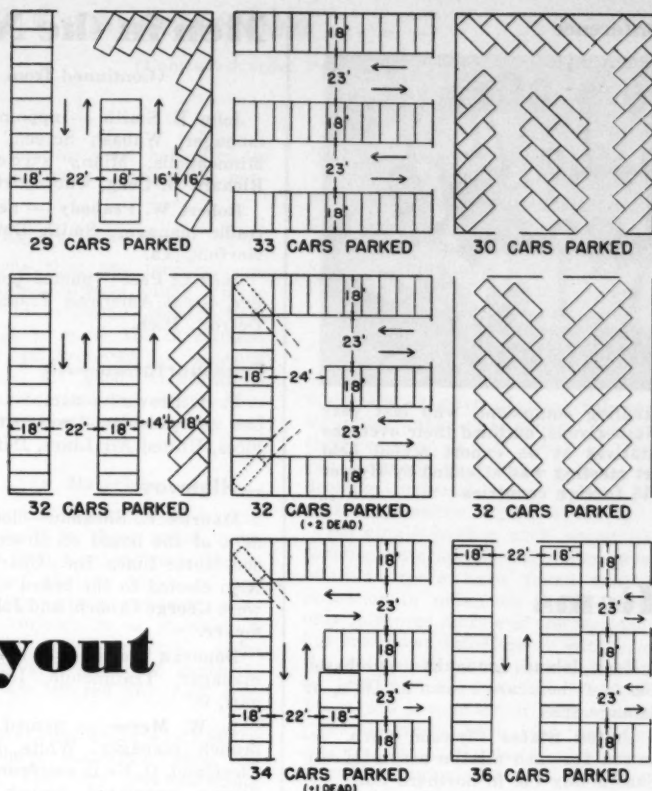
for various places, it is not necessary to keep all of one type together. For example, trailers may generally be classified and parked according to the following groupings: Inbound city, outbound, empty, shipped.

The first three of the above groupings may each have a separate parking area, or they may share a single parking strip, depending upon land available and the placement of other terminal facilities. If one lot is shared, the three groupings should definitely be segregated if possible.

Inbound loads may be further segregated according to miscellaneous (tl) or straight (tl). The dock foreman assumes responsibility for unloading the former, while the city dispatcher routes the latter directly to the consignee.

In a similar manner, outbound trailers which must be parked while awaiting power units may be seg-

Layout



in order to avoid time-wasting traffic tie-ups

regated according to destination. This assumes, of course, that there are several schedules each loaded to a number of different terminals.

Such is the case also at the relay station or terminal performing relay services, where loads are dispatched according to final destination and scheduled arrival time.

Flexibility

At first glance it might appear that flexibility is lost in assigning certain areas to certain vehicles, or to certain classifications. Such is not the case so long as no hard and fast rules are adhered to.

In segregating trailers according to inbound, outbound, and empty; for example, the area assigned to each of these classifications need not be marked off, with no other classification permitted in such section. Rather, the trailers should be grouped in certain unmarked areas which can expand or contract to

suit a set of changing conditions.

Segregation is accomplished by parking the trailers in a certain order at all times. In giving parking and hook-up instructions to the yard hostler, the dispatcher relays the destination of the load as well as the unit number. This greatly reduces the time required for trailer drops and hook-ups. With relation to trailers that have been shipped—a relatively short parking strip should be provided near the garage. In this way trailers due for PM, servicing, or repairs, are not loaded and dispatched before such matters are attended to.

Space Requirements

In determining the space requirement for trailers, a length approximately $1\frac{1}{5}$ the length of the unit should be allowed, hence a 42-ft length is adequate in most cases for 35-ft trailers which are parked without a tractor attached. If trac-

tors and trailers are parked attached, a 60-ft space would prove sufficient to accommodate the overall length of the rigs, not in excess of 50 ft.

Each unit should be allowed the commonly accepted 12-ft width. Each individual parking space, then, will be 12 ft wide by 42 or 60 ft long. As previously noted, there will be as many of these spaces as there are vehicles to be parked under peak conditions, plus a reasonable allowance for expansion. In addition, there must be allowed the usual maneuvering area.

Tractors

Like the trailers, the power units may be divided into three groupings—city, road, and shipped. It is not absolutely necessary to segregate road and city tractors where these two classifications of power units are of different type, make, and size.

In those operations where old road tractors are retired to city delivery use, it might be well to park all city tractors together and all road tractors together. One parking strip or area may be used for both types, but each type should remain with its group on the strip. Only where tractors are used interchangeably for road and city use need this consideration be overlooked.

Like the trailers, tractors awaiting PM service, or repairs, should be provided with a parking space near the shop. If the shop demands are not too great, tractors and trailers might share the same parking area.

Over-the-Road

Units which have been serviced and hooked for over-the-road dispatch should be provided with a parking area, preferably in close proximity to the exit. It should be so situated that road drivers may proceed to the exit without interfering with the traffic flow around the dock. Likewise, departing road units should not impede the progress of entering road vehicles or city equipment.

City Equipment

A parking area should be available for the parking of city equipment that is:

(Please Turn to Page 70)

Global Export Conference



Hyster Co., manufacturer of materials handling equipment, who last year opened their new European factory in The Netherlands, outlined their overseas marketing program for over 40 representatives at an export school held recently in Peoria, Ill. The week-long export meeting was attended by Hyster dealer representatives from 18 foreign countries

Industry Items

For the second consecutive year, Trailmobile, Inc. has been awarded a Certificate of Achievement by the National Safety Council.

Consolidated Freightways is accelerating its program of equipment renewal and expansion by placing orders totaling \$3,319,000 for new vehicles.

Strick Co., has been commissioned by the Carnation Milk Co. to make an all-plastic milk truck body.

Railway Express Agency, Inc. announces the purchase of 3,000 1½-ton pickup and delivery trucks at a cost of \$9½ million.

Elwell-Parker Electric Co., has appointed Landes, Sachary and Peterson Co. as its new distributor to cover the states of Colorado, Wyoming, Utah and New Mexico.

A new way of paying air freight was put into effect by Delta-C&S Air Lines. Developed in conjunction with the Citizens & Southern National Bank, the new service is known as the C&S Freight Payment Plan and permits air-freight customers to pay bills with a validating stamp instead of a check.

Rock Island Lines has purchased 100 50-ft box cars known as DF's, or damage free.

United States Plywood Corp. acquired for cash all the assets of the Shasta Box Co. in northern Cal.

The Colson Corp., Elyria, Ohio, has begun work on a new 40,000-sq ft plant in Elyria.

Pacific Wood Products Co. has purchased a substantial portion of the assets of Wright-Hibbard, Inc., industrial electric truck company, of Phelps, N. Y.

KLM Royal Dutch Airlines in the United States, announced the opening of new executive offices at 430 Park Ave., New York, N. Y.

American MonoRail Co., Cleveland, Ohio, announces the appointment of Engineered Industrial Equipment Co., Buffalo, N. Y., as its distributor in Western New York and in Elk, McKean, and Potter counties in Pennsylvania.

Plax Corp., Hartford, Conn., has sold to Westlake Plastics Co., Lenni Mills, Pa., its entire production equipment, applicable patents, etc.

Railroad Revenue Freight Car Loading

	1954	1953	1952	1951
January..... (5 wks.)	2,967,321	3,351,041	3,561,719	3,680,823
February..... (4 wks.)	2,461,745	2,730,301	2,911,090	2,834,472
March..... (4 wks.)	2,411,835	2,801,445	2,867,583	2,996,963
April..... (4 wks.)	2,445,157	2,957,088	2,912,199	3,152,198
May..... (5 wks.)	3,344,719	3,883,088	3,677,596	3,977,393
June..... (4 wks.)	2,730,266	3,203,942	2,605,738	3,294,766
July..... (4 wks.)	2,566,991	2,963,805	2,236,068	2,993,321
August..... (5 wks.)	3,391,678	4,022,382	3,882,069	4,120,219
September..... (4 wks.)	2,711,480	3,153,226	3,363,834	3,311,846
October..... (5 wks.)	.....	4,024,439	4,186,014	4,316,505
November..... (4 wks.)	.....	2,796,888	3,139,489	3,138,884
December..... (4 wks.)	.....	2,413,396	2,671,756	2,700,094
Total.....	25,031,172	38,302,762	37,985,155	40,499,182

Men in the News

(Continued from Page 15)

John E. Smith — appointed traffic manager, Wabash Screen Door Co., Minneapolis, Minn., succeeding Richard B. Leng, who retired.

Robert W. Peabody — new general traffic manager, Smith Douglas Co., Norfolk, Va.

Jack C. Peet — named traffic manager, Great American Transport, Inc., Detroit, Mich.

Transportation—Air

F. A. Brown — named assistant to the vice-president-transportation services, United Air Lines, Denver, Colo.

—Highway

Maurice E. Sheahan — elected president of the board of directors, Johnson Motor Lines, Inc., Charlotte, N.C. Also elected to the board of directors were George Crouch, and John Luetkemeyer.

Donovan Joslin — named plant manager, Trailmobile, Inc., Cincinnati, O.

A. W. Meyer — named St. Louis branch manager, White Motor Co. Cleveland, O. He is succeeded by Allen Zaring — appointed branch manager, Washington, D. C.

A. D. Englund — appointed assistant general manager, Great American Transport, Inc., Detroit, Mich.

—Rail

E. E. Foulks — appointed assistant vice-president, Rock Island Lines, Chicago, Ill. Rock Island also named R. H. Anderson as superintendent of transportation, Chicago, and J. C. Cartland as superintendent, western division.

Thomas J. Deegan, Jr. — elected vice president, staff, New York Central Railroad, New York, N. Y.

—Water

Captain Gaines Albert Tyler, USCG — designated Chief of Staff, Third Coast Guard District.



John C. Cosgrove (left) and Charles H. Tanner (right) appointed to the Board of Harbor Commissioners, Los Angeles, Calif.

G. Joseph Minetti — appointed member of the federal maritime board, Washington, D. C.

(Resume Reading on Page 21)

Roof Construction . . .

(Continued from Page 31)

ping and coating with hot pitch, to insure a tightly concealed construction.

Expert Inspection

It is true that the terminal operator cannot always climb up to the roof to examine construction. However, it is worth the investment of having an architect or someone experienced in good construction methods to examine construction several times between starting and completion.

New Materials

In addition to the standard roofing materials such as sheet metal (corrugated or flat) slag, gypsum, fibrous compositions, various types of aggregates, tile, glass, concrete, concrete and vermiculite or gypsum or similar light weight materials, shingles and several types of synthetic materials are offered for roof construction.

Any answer concerning which is the best of these materials must be conditional. The very best materials improperly applied may give far less satisfactory service than the least desirable materials skilfully and carefully applied. Generally speaking, cost limitations, all other things being equal, influence the use of most roofing materials. Another factor is appearance. Where sloping roof presents a large exposed area to public view, it is not wise to use materials that are subjected to fading or discoloration.

Perhaps the last word in the case of selection of materials is the advice of the builder, especially if he is willing to back up his suggestion with a long time guarantee.

Lighting Consideration

Because light is important in every terminal operation, it is wise to consider light admitting materials and facilities on a terminal roof. Glass, of course, is the standard material for this purpose. However, even in the case of glass, care should be extended in the selection of the material as some glass surfaces tend to collect dirt more than others, which will affect the amount of light transmitted.

Use of Plastic

Plastic lights are finding increased use in industrial building construction. However, care must be used to select the type that will not check, sag or otherwise lose its shape, discolor or deteriorate quickly with age.

Some interesting new plastic roof

lighting materials are available in various shapes. A recently introduced material comes preshaped in the shape of a dome. These domes are said to be easily installed by the use of a special extruded aluminum frame and are claimed to be self cleaning.

Acoustical Materials

In the construction of a roof it is wise to consider sound absorbing materials as part of the roof construction. Contrary to general opinion, their expense is not great as they can be made to replace a layer of decking material in a multi-layer roof construction.

Terminals having such sound absorbing materials in the bottom layer of their roofs have found that a reduction in noises on the dock not only improves morale of the workmen but cuts down interference with open PA systems, telephone communication, or just normal operational sounds. There are a number of cases where checking errors have been considerably reduced by the use of such sound absorbing materials.*

(Resume Reading on Page 32)

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Yard Layout and . . .

(Continued from Page 53)

peak periods three small local trucks can be backed into two positions. Under conditions existing today, the 12-ft position is best for most terminals.

Accepting a 12-ft spotting width, it becomes apparent that the required apron width is slightly greater than the over-all length of the unit. For the fleet operating within the usual state requirements of 45 ft maximum over-all length, the apron width for optimum maneuvering would be 49 ft.

To determine the total width of the maneuvering space (apron width plus width of dock parking area) for a dock situation of the type shown in diagram (c) of Fig. 5, a safe rule to follow is to allow at least double the length of the unit for the total maneuvering space width. Hence, for a fleet utilizing units not in excess of 45 ft, the total width of the maneuvering space would be not less than 90 ft—100 ft would be more desirable.

Apron Drainage

Proper apron drainage involves the problems of dripping from the roof or canopies, and of apron slope. Gutters and drain spouts are the best answer to the dripping problem.

Since the yard and apron should be graded to permit surface water drainage, the only problem is one of direction of pitch. Generally, an outward slope is preferred to an inward slope.

An extreme inward pitch cuts loading speed, since loaders must travel uphill into the vehicle. It permits freight to topple over backward when loading or unloading, makes it difficult to pull away from the dock in foul weather, and allows rainwater and melting snow to run along the roof of the vehicle onto the dock.

While an outward pitch slows unloading time and may make it difficult to back into position under ice or snow conditions, it does eliminate the freight toppling problem and precludes the possibility of rainwater and melting snow running back onto the platform.

In either case, however, the slope should not be too severe—just steep enough to allow satisfactory drainage.

Terminal shop location depends primarily on two factors — type of service to be performed, and necessary size of shop to handle this service.

Where the service is to be of an emergency or minor nature, the shop will be relatively small and might well become an integral part of the dock layout. In this case there are three choices of shop location.

The shop might be situated at the open end of the dock, with the office at the other end (Fig. 7); it might be situated at the office end, between

the office and the dock, or it might be placed at the extreme end of the dock, with the office between it and the dock (Fig. 9).

In all three examples outlined above, one of the three elements becomes stymied in the event that expansion is necessary. This situation can be avoided by building a single story dock, with a two-story office and shop at one end, with the shop occupying the first floor, or as shown in Fig. 8.

While the above situations are suggested for smaller operations, they have been developed with some success by larger terminals. The possibility of traffic entanglements, however, is present in larger terminals with the shop located in close proximity to the dock.

Where shop functions include repairs and maintenance work of a major nature, the shop might best be erected as a separate building, but still in the vicinity of the dock. While construction costs will be higher, they will be offset by more efficient operation, better provisions for expansion, and elimination of traffic tie-ups. An example of this type lay-out is shown in Fig. 10.

Like the shop, the fueling and trip or daily service area may be located in any one of several spots, as shown in Fig. 12. The decision on where to locate this feature will depend on whether the terminal operator feels his operation will be best suited by fueling and servicing vehicles on entrance, on departure, or as part of the shop routine.

Yard Paving

If at all possible, the terminal yard should be completely paved. The expense involved is minimized by the reduction in claim expenses, maintenance costs, spotting costs, and a series of miscellaneous costs.

It is recommended, however, that if paving will impose too severe a financial hardship on the organization, it would be best to do without rather than substitute a substandard job. A poor surface will give no better service than an unpaved yard, and will cost added money for extensive maintenance work. Excellent surfaces can be produced with either concrete or asphalt.

Necessity, type, and location are the important considerations in solving the problem of yard scales. In many operations scales are unnecessary. Where they are used, however, it is wise to weigh the expense of their purchase, installation, and maintenance against the cost of using outside facilities.

Location of yard scales depends on the type scales used and their size. Possibilities are illustrated in Fig. 13.

There are advantages and disadvantages to each location. Locating the scales at the office end of the terminal with the reading or printing device inside the office results in faster weighing, in that the hostler need not leave the cab for each reading.

On the other hand, scales at the office end of the building may conflict with the parking area for officials and visitors or may interfere with the flow of traffic around the dock.

Placing the scales at the open end of the dock overcomes some of the disadvantages of the office-end placement. Dock-end placement does not interfere with parking requirements and it may or may not conflict with the yard traffic. However, there are still numerous disadvantages to dock-end placement.

An inside-the-building location of the reading bar or recording device becomes impractical. Hence a special shelter must be provided outside the terminal building. A further disadvantage of end-of-the-dock scales location is the restriction such as location places on dock expansion.

Some operators place their scales and dispatcher's office at the terminal exit gate. Such a location offers the advantages of inside-the-building weight recording with lowered weighing costs. Provided the exit is wide enough, this placement interferes but little with the departure of other vehicles. Likewise, there may be no

conflict with the yard traffic. The main drawback of such a location is that the unit is not weighed until loaded and ready for dispatch with the road driver at the wheel.

Another possible location of yard scales is in the service lane inside the shop. This location has the advantage of being inside and completing shop service and weighing in one operation. There are numerous disadvantages to this arrangement. A unit may be serviced and then found to be overweight. It would then be pulled down and run through the lane again.

The scales may be located at the fuel and service area. By so doing, weighing costs are reduced when the operation has a gas boy who could both weigh and fuel the units. The hostler would not need to leave the cab until the last axle is weighed and

the tractor is at the pumps.

The disadvantage of such an arrangement, however, might arise in a situation similar to that pointed out above in the garage location for scales. Also, there might be some confusion as to whether the power unit needs fueling and the tires all around require checking, etc.

Finally, a special weighing area may be provided which is devoted exclusively to vehicle weighing. Such an arrangement still would require the driver to exit from the cab for each weighing, unless, of course, the operation is large enough to warrant a full-time weighmaster. Here again the weight could be transmitted to the dispatcher by pneumatic tube. A brief analysis of the desirable flow of outbound trailers should disclose the location of a separate weighing area.

It is generally recommended that the terminal yard be completely fenced. There are certain exceptions, however, as when the dock is located close to the street, or the yard is completely surrounded by buildings. In such cases fencing is either impractical or unnecessary.

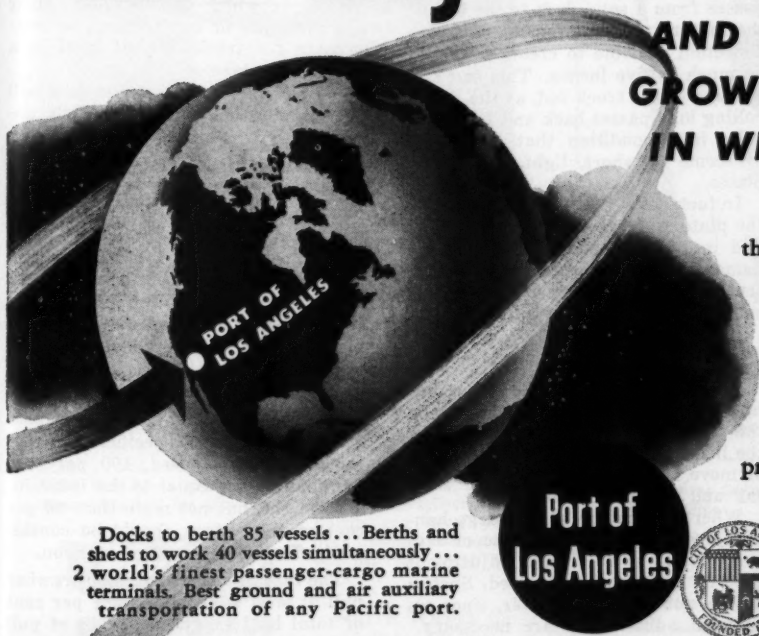
In situations where fencing may be erected, its use is desirable for at least two reasons:

1. It provides protection for loaded vehicles parked overnight or for extended periods, and
2. It reduces or supplements watchman service.●

(Resume Reading on Page 54)



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find out how
 on pages 10-11

Adjustable Ramps . . .

(Continued from Page 37)

Another solution to the problem is provided by the powered adjustable ramp. It is designed to adjust to any required height, makes greater lengths and more gentle slopes feasible because of its powered operation. This type ramp is engineered to lift the empty deck, and to hold a full load. It is fitted with a hinged bridge plate at the forward end.

When powered industrial trucks are used, the slope may be steeper than that for manually-operated trucks. The angle of slope in determining the length of the powered adjustable ramp is governed by the wheel base and underclearance of the equipment used as shown in Fig. 2.

Where light highway equipment is worked, or the freight-handling truck is extra heavy (or if a loaded shop truck exceeds 50 per cent or more of capacity of the rear axle of the highway vehicle), a floating action is desirable in the powered ramp. This is vital to give smooth operation and to compensate for sag and rebound of the truck bed.

Floating action permits the ramp to raise and lower with the truck bed as a load passes over. It also insures alignment at all times during loading or unloading.

With fork trucks, particularly of large capacity, the sag and rebound are intensified during loading. When loaded, most of the combined weight is carried on the front wheels of the fork truck and as the rolling load passes from a solid dock to the bed of the motor truck, the spring and tire deflection combine to create a sag of as much as five inches. This sag and rebound of the truck bed, as the heavy rolling load passes back and forth, results in a condition that cannot be overcome by short, light, loose dock plates.

In fact, there is a tendency to throw the plate, and start the truck rolling; and in addition, such a bump might damage the running gear of the fork truck. Serious injury to personnel can accompany such a situation.

Design Features

The powered adjustable ramp has layover arms or a lip which rests on the truck, with provision for releasing the lift mechanism so that it can float or move freely up and down with the sag and rebound of the truck.

Where the nature of the cargo handled does not permit the use of layover arms, a full load adjustment type of unit can be obtained. Such a unit is not as fast, however, since occasional adjustments are necessary.

The first point to consider when planning for the installation of ad-

justable dock ramps is the adjustment range desired above or below the existing dock. With this information, selection of the proper length ramp for most efficient operation is simplified.

The next point to consider, is the nature of the handling equipment itself. The lower the power of the unit, the more gentle must be the slope.

The grade clearance and wheel base of handling equipment to be used is another important factor in such planning. Generally, a good powered adjustable ramp, properly selected, correctly installed, will have the following features:

1. Low installation cost.
2. Weather-proof construction (if located outside).
3. Ability to support rolling loads off-center or for cross travel.
4. Ability to operate efficiently even at lowest temperatures.
5. Designed for easy relocation during plant changes and expansion.
6. A minimum of moving parts with enclosed lubricated wearing surfaces for protection against dirt.
7. Engineered against dependence on a central air supply if shipping or receiving departments work overtime.
8. Layover arms or a lip heavy enough for service required. Layover arms must have ample bearing on the truck bed to minimize pressure and, preferably, rounded on the bottom to prevent scuffing.
9. Equipped with heavy bridge plates, crowned and beveled. Some are available in two sections to compensate for trucks out of level in a horizontal plane.
10. So engineered that the deck will not drop if the vehicle pulls out unexpectedly.

This handy table in Fig. 1 correlates the load weights that can be handled at various strengths of drawbar pull, at various angles of ramp slopes including level. Drawbar pull is shown as 100 per cent efficiency. An added margin for power may also be required if floor surfaces or equipment are not in good condition.

If mechanical power is used, an additional margin of reserve allowance should be made in accordance with manufacturers' specifications. If human power is used, 100 per cent drawbar pull is equal to the individual's weight, but not more than 60 per cent of the weight should be considered effective in average exertion.

The rate of effectiveness of drawbar pull at level is shown at 2½ per cent of total load weight, or 25 lb of pull per 1,000 lb of load. •

(Resume Reading on Page 38)

Pre-fab Possibilities . . .

(Continued from Page 29)

pre-fab buildings one-third of the cost is labor.

Because of the simplicity of design in pre-fabricated buildings, it is not unusual to have a building erected, and ready for use, within one week from the delivery date of the material to the job site. This is possible because all the structural and components of the building are cut to size and pre-punched for easy assembling, requiring non-skilled help. Normally, a pre-fab steel building can be erected at a rate of 8 to 12 sq ft per man hour.

This type of structure can, because of construction which calls for a uniformity of all structural design and components, be lengthened in multiples of 2 to 16 ft.

Insurance Rate

All other factors being equal, such as content matter inside the building, etc., the insurance rate for the pre-fab steel building is 17.9¢ per \$100 of insurance per year, while the masonry construction building is 77.2¢ per \$100 of insurance per year. Some pre-fab steel buildings on the market are rated as fireproof by insurance companies.

Maintenance costs of pre-fab steel buildings are held to a minimum because they require no plastering, painting, or repair work; and because of the heavy 18-gauge steel, inclement weather will not adversely affect the structure.

Another feature of pre-fab steel buildings of importance to freight terminal, is the elimination of atmospheric moisture and fumes. This is so, because steel is water repellent and the fact that all joints and exposed surfaces can be sealed, using a variety of sealers.

Protection of the stored materials in freight terminals from rodents is attained easily in steel pre-fab buildings, as the steel itself acts as a rodent barrier.

There are approximately 117 pre-fabricated building manufacturers in this country who do a business ranging from a few thousand dollars a year to millions annually. •

(Resume Reading on Page 30)

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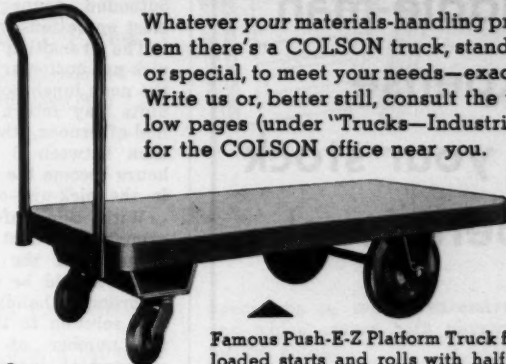
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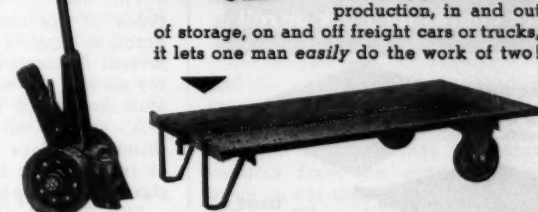
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Determining Dock ...

(Continued from Page 35)

Pick-up—Outbound

The second phase in the working day is the pick-up—outbound phase. While much interchange freight for outbound loading may be received, and some pick-ups—usually straight loads—are made in the early and mid-morning hours, the bulk of the outbound tonnage materializes in most operations in the late afternoon.

The transition from deliveries to pick-ups customarily occurs just after the noon lunch hour. While some city units may return to the terminal in mid-afternoon, the majority will return between 5 and 6 PM. These hours become the peak spotting hours in the pick-up—outbound phase.

With this information as background, the next step is the determination of the number of vehicles which should be spotted at one time in order to handle the second phase. The solution to the problem rests in the number of city units to be stripped at one time, plus the number of road units to be loaded at one time.

Basically, the same four factors used in arriving at the inbound-delivery answer can be used in the pick-up—outbound phase. This phase, however, will depend largely on, and vary considerably with, the type operation used.

For terminal-to-terminal operations, cross dock loading may be used with little or no freight ever touching the floor. In this case loading of line haul units will be completed virtually at the same time unloading of pick-up units is completed. Therefore it can be assumed that the cut-off time for stripping and loading are the same.

This may not be the case in other types of operations, however. For example, where a trailer is loaded for several destination terminals, freight for all but the most distant terminal must be floored before loading.

A similar situation exists with through trailers loaded for drop-offs at intermediate terminals or to consignees enroute to destination.

Still a third situation exists where units are loaded in delivery sequence for peddle runs. All freight to be peddled must be floored before loading may begin. In peddle type operations, a shorter haul is involved, permitting later possible departure time, and a greater possible work period.

Loading and Unloading

The questions which must be answered in each of these last types of operations may be divided according to pick-up unloading and line-haul loading. In each case the same basic four factors outlined above must be known — beginning time, finishing

time, total units, and time per unit.

For the pick-up unloading operation, assume stripping should begin at 5 PM and end by 7 PM. There will be 40 trucks or 32 city trailers to strip, and it takes one-half hour to strip a truck and one hour per trailer. Using the formula developed earlier, 10 trucks or 16 trailers should be stripped simultaneously.

For line-haul loading, loading should begin at 5 PM. Through loads, intermediate way station drops, and consignee drops must be loaded by 9 PM. Peddle loads must be ready by 5 AM. There are 20 miscellaneous outbound loads, all of which must depart by 10 PM. Also, there are two peddle runs to leave at 5 AM, and two more to leave at 7 AM. It takes a stacker three hours to load each unit.

The bulk of the loading must be completed in four hours. Since it takes a stacker three hours to load each unit, each stacker can load one and one-fourth units in the 4-hour period. Therefore, to load the 20 units, all 20 must be loaded at one time by 15 stackers.

Assuming that there are five destination terminals, it is suggested that one unit be available for each terminal, with the 15 extra trailers accommodating those terminals which receive the heavier volume.

As soon as heavy-volume units are loaded they should be pulled out, while the lighter volume units may not move out until loading is complete. Thus, the 20 units are not loaded at the same rate of speed, and do not pull out simultaneously.

Since through loads have departed prior to peddle loading, the peddle units will not affect the dock length.

Total Berths Needed

Using these figures, spots needed for the pick-up—outbound phase include 20 for road units and 10 for pick-up trucks (or 16 for trailers). Total berths required then becomes 30 or 36.

In comparing the morning peak with the afternoon peak, it is noted that the morning phase requires 23 spots, as compared with 30 spots in the evening. Thus if trucks are used, the dock must be long enough to accommodate 30 units (36 for trailers).

Since it is common practice to park units in pairs, especially with double doors, the modern truck dock will be designed to berth 32 units at one time, or 16 on each side. Allowing 12 ft for each unit, dock length becomes 192 ft.

For the trailer operation, 18 berths on each side of the dock will accommodate the full 36 units, making the dock 216 ft long.

(Resume Reading on Page 36)

WAREHOUSING

Does bailor or warehouseman have burden of proof in suit for loss or damage to goods?

Over the past years, the writer received many inquiries from warehousemen and distributors of merchandise asking whether a bailor or the warehouseman has the burden of proof in a suit against the warehouseman for loss or damage to stored goods. Recently a higher court answered this and other important legal questions.

First, it is important to note that the warehouse laws, uniform in various states, clearly provide that ordinarily a warehouseman is bound to deliver stored goods upon a demand made either by the holder of a receipt or by the owner, if such demand is accompanied with: 1. An offer to satisfy the warehouseman's lien; 2. An offer to surrender the receipt if negotiable, with such endorsements as would be necessary for the negotiation of the receipt; and 3. A readiness to sign an acknowledgment that the merchandise has been delivered, if such signature is requested by the warehouseman.

The law also states that in case the warehouseman refuses or fails to deliver the goods in compliance with the above the burden shall be upon the warehouseman to establish the existence of a lawful excuse for such refusal.

Therefore, this law clearly provides that the warehouseman must prove that his negligence did not result in loss, or damage to the stored goods, otherwise he is liable for the loss.

Warehouseman shall not be liable unless loss or damage was caused by his negligence.

Now, another part of the law, uniform in all states, provides that a warehouseman shall not be liable for any loss or injury to the goods unless it was caused by his failure to exercise such care as a "reasonably careful" owner of similar goods would exercise.

In view of an apparent contradiction in these two laws some higher courts have held that the burden is on the bailor to prove that the warehouseman was negligent. The other line of cases hold that the burden rests upon the warehouseman to prove that he was not negligent.

In the leading case of *T—— Co. v. P——*, 231 P. 516, the higher court held:

"We are not in accord with the views of those courts holding that where recovery is sought, based on the negligence of the warehouseman, the statute has changed the rule as to the burden of proof, for the reason that the statute deals only with the rights, duties, and liabilities of the parties under the contract of bail-

WITHIN THE

By Leo T. Parker

**Legal Consultant,
Distribution Age**



ment as embodied in the warehouse receipt."

In other words, where a bailor, or owner of stored goods, sues a warehouseman for loss or injury to the goods based on negligence, he must, as in other negligence actions, plead and prove that the negligence of the warehouseman caused the loss.

On the other hand, where the suit is filed against the warehouseman on his "contract" it is his duty to return the goods to the bailor when properly demanded. Thus, where recovery is sought on the contract of bailment, all that the bailor need prove is the failure or refusal of the warehouseman to deliver the stored goods to him upon demand.

It then falls upon the warehouseman to prove that he exercised the care required of him by the statute and that the loss was not due to his negligence. See D— Warehouse Co. v. W—, 172 F. (2d) 910, F— Warehouse Co. v. C—, 109 So. 20; R— v. Q—, Quincy Warehouse Co. 249 Mass. 492; and H— v. J. E. M— Transfer & Storage Co., 149 Ohio St. 387.

TRANSPORTATION

Can injured employee sue the negligent company after receiving State Workmen's Compensation?

According to a late higher court decision an injured employe may recover compensation under the State Workmen's Compensation Act, and then sue and recover damages from a company whose negligence caused his injuries.

For instance, in *H— Iron & Metal Co. v. M—*, 252 Pac. (2d) 475, the higher court awarded a person named M— \$26,000 damages for a knee injury which required surgery, and thereafter, two additional

operations to relieve excessive pain and which caused both physical and mental shock.

The testimony showed these facts: For several years M— was employed by the L— W— Motor Freight, a company engaged in the transportation of heavy goods in interstate commerce. The H— Iron & Metal Co. were engaged in commerce and trade as wholesalers and retailers of used and new pipe. M— was instructed by L— W— to proceed to the H— establishment to pick up certain merchandise for transportation. Upon arrival at the yard he procured the bill of lading from H— and was directed to proceed to the yard where H— employees would load the merchandise on his van. Without any request M— began assisting the H—'s employees to load the van and he was seriously injured. The court held that M— could receive compensation under the State Workmen's Compensation Act, and he was awarded a substantial amount of compensation. Then M— sued the H— Iron & Metal Co. for damages claiming that his injuries resulted from this company's negligence in not keeping its equipment in safe condition. As to the condition of the clamp which caused M—'s injury and used in the loading operation, the evidence was that it was old, rusty, and beat up with hammers to where it would not work properly.

This court allowed M—— \$26,000 damages in addition to the compensation award. The court said:

"We are unable to agree with defendant's contention that the verdict is excessive. Plaintiff's (M——)'s kneecap was badly injured which required surgery. There was evidence of both physical and mental shock. The damages here recovered were in the sum of \$26,000."

Warehouse SPOTLIGHT

Warehouse Expansion

D. H. Overmyer Warehouse Co., Toledo, Ohio, recently opened a new merchandise warehouse in Memphis, Tenn. The new building has 110,000 sq ft of floor space, reinforced concrete construction, and is fully sprinklered. Features also include an 8-car siding, and 10 truck docks. Samuel Cox, Jacksonville, has been named manager of the new warehouse.

Dayton Warehouses, Inc., Dayton, Ohio, has opened a new, modern, sprinklered, and ADT protected warehouse in Dayton. Features include the photographing of inbound shipments to show condition of goods, rail car accommodations, and truck docks. President of the new firm is Sheldon B. Ackerman, who also is president of Lima Truck & Storage Co., Lima, Ohio. Other officials are Sam Kamin and James Howenstine. Robert Brooks is general manager.

—DA—

NYSWA Elections

A highlight of the 33rd annual convention of NYSWA, held in Montauk, L. I., N. Y., was the election of the following officers and directors: president, Martin L. Santini, New York City; general vice president, Cy Garvey, Buffalo, N. Y.; HHG vice president, Louis C. Schramm, New York City; MDSE vice president, James Wilson, Buffalo, N. Y. Directors: Mike Maffucci, Lynbrook, L. I.; Henry Brengal, Hicksville, L. I.; John Murtaugh, Millbrook, N. Y.; and Lawrence Dayer, Buffalo, N. Y.

New Members

Newest members of Affiliated Warehouse Companies are: Dayton Warehouses, Inc., Dayton, O.; The Lima Truck & Storage Co., Lima, O.; Michael J. Bobb, Inc., Philadelphia, Pa.; D. H. Overmyer Warehouse Co., Inc., Tampa, Fla., and Toledo, O.; Eastern Penna. Storage, Inc., Wilkes-Barre, Pa.

—DA—

New Officers

The Southeastern Warehousemen & Movers' Assn. elected the following officers: president, Frank H. McNeely, Carolina Transfer & Storage Co., Charlotte, N. C.; 1st vice president, T. H. Duke, Jr., Laney & Duke Storage Warehouse Co., Jacksonville, Fla.; 2nd vice president, C. W. Hual, Jr., Bonded Distribution & Storage Co., Pensacola, Fla.; secretary-treasurer, Charles E. Boineau, Boineau's Inc., Columbia, S. C.

—DA—

Training Conference

The Refrigerated Warehouse Management Training Conference, a joint NARW and TRRF promotion, will be held in the Edgewater Beach Hotel, Chicago, January 10-13. Registrations can be made through NARW, Inc. (Training Conference Dept.) 608 Tower Bldg., Washington 5, D. C.

Men in the Spotlight

Herman Stern, Majestic Warehouses, Inc., Chicago — appointed to the Board of Directors, Movers' & Warehousemen's Assn. of America, Inc.



The following men also were appointed to the board of directors, of the M&WAA: John W. Geipe, Eastern vice president; William C. King, Western vice president; Milton J. Arpin, Eastern director; and Charles Knowles, Western director.

John L. Keogh—recently appointed assistant director of Storage, Distribution and Disposal for the Department of Defense.

Colonel H. O. Warlick, former USDA Warehousing Official—appointed staff director, depot Utilization Committee, Task Force on Subsistence Services—Hoover Comm.

R. Frank Wallace, vice president in charge of Crooks Terminal Warehouses, Inc., Kansas City, Mo.—died recently, following a long illness.

Robert W. Adams—named manager of the San Francisco Claims Dept., Bekins Van & Storage Co., Los Angeles, Calif. Adams was formerly assistant to Fred McFarland, who resigned.

The Big Push



The Pickens-Kane Moving & Storage Co., recently completed one of the largest piano-organ moving operations on record. The huge move was accomplished during the convention of the National Association of Music Merchants at the Palmer House in Chicago. The 463 pianos and organs came from all over the world and ranged in size from small spinets to a large concert grand weighing 2,200 lb

For Additional Warehouse News, See Chuting the News, Washington DA and Within the Law

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Parking Problems . . .

(Continued from Page 55)

1. Loaded and ready for dispatch.
2. Loaded with pickups waiting to be unloaded.
3. Empty and waiting for loading of deliveries at the dock or loading of pickups in the city.

City equipment, which includes both truck and tractor-trailer units, may be segregated into two breakdowns, loaded and empty.

In most cases consideration need not be given to the type of load on the loaded units because in most operations the city units will have only deliveries on them in the morning and early afternoon while the same units will have only pickups on them in the afternoon and evening.

In extremely large operations, however, where inbound unloading and outbound loading are performed simultaneously 24 hours a day, it may be necessary to separate the loaded city units when they have been parked according to the load—pickups, or deliveries.

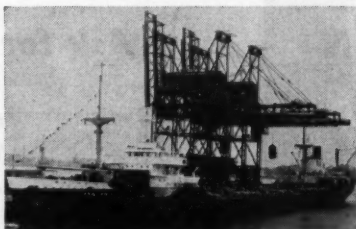
Shop Vehicles

Vehicles and equipment used by the shop should be allocated a space for parking close to the shop. Such equip-

ment as service trucks, wreckers, and yard donkeys should be parked in close proximity to the shop.

With relation to the parking of employees' automobiles, the problem is not so complex. A separate area outside the grounds of the terminal area may be provided. This is desirable where the terminal lot is small. On

Historic Berthing



Government dignitaries and business executives from all sections of the United States and Canada gathered in Philadelphia recently to witness a celebration marking the arrival of the S.S. Hawaiian with the first shipment anywhere in the world of high-grade iron ore from the vast Quebec Labrador mining development

larger lots, parking for employees' vehicles may be provided on the lot with the terminal.

Whatever the parking arrangement, ingress and egress from the employees' parking area should not interfere in any way with the traffic requirements of the terminal itself. The entrance, exit, shifting, and spotting requirements of operating vehicles should be given first consideration, for these are the items that involve expenses.

In determining the space requirements for automobiles, 18 to 22 ft commonly is allowed for length in municipal parking centers. An 8-ft width usually is allocated to each vehicle, and 10 to 22 ft is allowed between rows for maneuvering, depending on the parking arrangement.

The Associated Retailers of Indiana put forth the results of an extensive study on automobile parking design which is worthy of consideration (see chart), Parking for Smaller Cities.

Many of the standards which apply to employee parking facilities may be applied to the location for parking of officials' and visitors' cars. In most cases, however, a parking area for a limited number of vehicles such as this can be located on the terminal lot. Preferably, this parking area should be located in close proximity to the office.*

(Resume Reading on Page 56)

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and Cold Storage Corp.****385 LIBERTY ST., SPRINGFIELD 1**

MODERN REFRIGERATED WAREHOUSE. Reinforced Concrete Building—Completely Sprinklered—ADT Fire and Burglar Alarm—Private Siding—Freezer and Cooler Space, 576,040 Cu. Ft.—Pool Car Distribution—12 Truck Platform.

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Merchandise Storage—Pool Car Distribution
Private siding on N.Y.N.H.&H.R.R.
Bonded Warehouse Sprinkler System
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Springfield, Mass. Telephone
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General Cold Storage

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Whse.: steel & concrete automatic fire & burglar alarms—ADT. TS Area 1,000,000 cu. ft. Fl. Ld 350 lbs. C1 Ht 8-10 ft. Elev cap 5,000 lbs. Priv siding 50-car cap on. & wagon shipments via B&M; sta. Brightwood; free switching, 100% palletized. Temp. range—10° to 40° Humidity control. 15-tk. dock. Specialize in frozen foods. Open yard site. Br. Office facilities. Loans on stored commodities. Priced tariff.

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SPRINGFIELD, MASS.**J. J. SULLIVAN THE MOVER, INC.****385 LIBERTY ST. SPRINGFIELD 1**

Merchandise and Household Goods
Private Siding—Pool Car Distribution
Heavy Hauling & Trucking—Furniture
Packing & Crating—Local & Long Distance
Moving—Rigging & Truck Crane Service

DETROIT, MICH.**CENTRAL DETROIT WAREHOUSE**

Located in the heart of the wholesale and jobbing district, within a half-mile of all freight terminals. Modern buildings, lowest insurance rate in city.

WAREHOUSE & TERMINALS CORPORATION
Wyoming and Brandt Avenues

Modern concrete buildings, fully sprinklered, serving the west side of Detroit and the city of Dearborn. Specializing in heavy and light package merchandise and liquid commodities in bulk. Connected directly with every railroad entering the city.

Central Detroit Warehouse Co.

Fort and Tenth Streets, Detroit 16, Mich.

DETROIT, MICH.**LAKE SHORE WAREHOUSE, INC.**

Merchandise Storage—Pool Car Distribution

Centrally located for all wholesale groceries
Grand Trunk R.R. 6 Car siding**700 East Atwater****Detroit 26, Michigan****Terminal Site Selection . . .**

(Continued from Page 23)

In studying operating costs there are three major considerations:

1. Proximity to deliveries.
2. Proximity to pick-ups.
3. Proximity to connecting carriers.

These last three factors perhaps are the most important in determining the choice of a site. They involve a study of travel distance to and from the carrier's major customers.

On the basis of all previous factors, the carrier should locate several possible building sites. Having done so, he then may compute the ton-mile figures on (1) deliveries to consignees, (2) pick-up from shippers, and (3) deliveries to and pick-ups from connecting carriers.

Ton-Mile Computation

In making these computations the following procedure should be followed:

1. Divide the community into zones, preferably by pick-up and delivery routes.
2. Select as a base period several months which may be considered representative.
3. From the terminal records of these months list the tonnage delivered and picked up in each zone.
4. Multiply this weight by the distance in miles to the center of each zone from each proposed site.

1955 Directory

DA's 1955 Warehouse Directory is in the planning stage. Listings will be more comprehensive, but simpler to use. Forms for the new listings will be in the mail soon.

5. The resulting ton-mile figures may then serve as a basis of comparison for each proposed site.

The site which yields the lowest total ton-mile figures, all other factors being equal, would be chosen as the location for the new installation. It must be emphasized, however, that all factors must be considered.

That site which yields only second or third best in ton-mile rating may be selected since sites which possess lower ton-mile ratings also may possess undesirable features which more than offset the operating economies derived from being close to customers.

For example, the purchase price of the land may be too high; the site may be in a heavily congested area; or the site may be inaccessible. In the final analysis, all costs must be determined and a final site will be that location which has the lowest total cost—and at the same time best fulfills the numerous general requirements. •

(Resume Reading on Page 24)

DISTRIBUTION AGE

and Firms are Arranged Alphabetically

LANCASTER, PA.

INC. 1904

MEMBER
LANCASTER STORAGE CO.
LANCASTER, PA.
Merchandise Storage, Household Goods, Transferring,
Forwarding
Manufacturers' Distributors, Carload Distribution,
Local and Long Distance Moving
Member of May.WA—PFWA—PMTA

PHILADELPHIA, PA.

Member of A.W.A.—P.W.A.

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Meadow and Wolf Sts.

Philadelphia 48

Complete Warehousing Service for Storage and Distribu-
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Private Siding B. & O.

Pool Car Distribution

Low Insurance Rates



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Gallagher's Warehouses, Inc.

708 South Delaware Avenue, Philadelphia 47

Merchandise Storage

Storage in Transit

Direct Sidings—Penna. R.R. and Reading R.R.

Pool Car Distribution

Represented by Associated Warehouses, Inc.

New York (17)

Delaware

Chicago (8)

59 Vandeventer Ave. City and Suburban 549 W. Randolph St.

Murray Hill 9-7445

Randolph 6-4457

Terminal Design . . .

(Continued from Page 25)

hand truck operation, a 45-ft dock is satisfactory. For
fork truck operations the 60-ft width is most widely
accepted.

For a truck dragging system, the recommended width
is 80 ft. The Drake Report on dragline evaluation recom-
mends dragline location 14 ft from the dock edge. The
report also suggests drag systems in preference to fork
truck operations on all docks over 250 ft long.

Dock Height

General disagreement prevails as to the correct dock
height to accommodate road trailers, city trailers, and
city trucks. Some operators attempt to solve the problem
by creating two-level docks.

Floor heights of equipment that must be docked ranges
from 42 in. for city trucks on 7.50x20 tires, to 54 in.
for road trailers on 11.00x22 tires. Because the trend is
to dropped frames and 10.00x20 tandems on the newest
maximum capacity trailers, with resulting floor heights
of 47 to 50 in., a platform height of 48 in. would appear
to be the best compromise.

An 8 to 10-ft canopy width is general. Canopies should
be installed with down spouts. Since continual spans of
up to 200 ft for platform lengths are possible with today's
arched and welded trusses, the design should utilize a
minimum of interior bearing supports.

Terminal standards also have been established for the
yard area (see "Yard Layout and Building Types," Page
50) and parking requirements (see "Parking Problems
in Terminal Layout," Page 54).

Other Considerations

The terminal manager's office should be located close
to the work area to facilitate frequent personal contact
with the employees, and to improve overall supervision.

Every precaution should be taken to provide fire pro-
tection, including the selection of a good sprinkler system
and liberal use of extinguishers and fire hoses.

Fluorescent lighting with the slim-line cold cathode
tube has been found to be most satisfactory for office
lighting. On the dock, a fixed fluorescent lighting system
should be augmented by flood lights on swivel joints to

(Please Turn to Page 94)



"MERCHANTS" for smooth, economical distribution in Philadelphia

Select the "Merchants" services and facilities
which best suit your needs. 12 big, modern,
sprinklered, strategically situated warehouses
—totaling 2,100,000 sq. ft. of storage area—
located in Philadelphia's wholesale, shipping
and distributing centers. Served by Reading,
Pennsylvania, and B&O Railroads. Storage-
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Sheltered truck platforms. Free and bonded
storage of all kinds of goods. Low insurance
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For efficient, economical distribution in
the Philadelphia area, choose from among
the 22 big, modern "Pennsylvania"
warehouses. Here are over 1,000,000
square feet of desirable free and bonded
storage area.

Painstaking personnel, using specialized
equipment, handle even difficult com-
modities with speed and safety. Here
are superb rail and highway facilities—
one- to 10-ton trucks for prompt store-
door deliveries. Low insurance rates.
Write for full details about money-saving
"Pennsylvania" service and storage of
goods in any quantities.

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York 5; J. W. Torreforte, 250 Park Ave.,
New York 17; Henry H. Becker, 53 W.
Jackson Blvd., Chicago 4.



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WAREHOUSING & SAFE DEPOSIT COMPANY
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STORAGE DISTRIBUTION



In Philadelphia you can solve in jig-time the problems of storage and distribution. You merely get in touch with Terminal Warehouse Co.

Behind this one name are: 13 modern warehouses; 3,000,000 sq. ft. of storage space; U.S. Customs bonded space; efficient storing and moving of household goods; fast handling of bulk or packaged goods; direct connections with the Pennsylvania and Reading Railroads; low switching rates to and from Delaware River piers; pool-car service; storage-in-transit; facilities for receiving shipments by truck; mechanized handling equipment; fast store-door delivery by our own truck fleet. Write for further information.

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SAN FRANCISCO 7: 625 Third St., Sutter 3461

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276,000 SQ. FT. FLOOR SPACE
ALMOST IN THE SHADOW OF CITY HALL

Outside Congested Area	Office Space for Rent
Low Insurance Rates	Experienced Personnel
Completely Sprinklered	Convenient to Ocean Shipping

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OPERATED BY
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TRUCK RENTAL COMPANY

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Jobbing District**

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COMPLETE TRUCKING FACILITIES
A.D.T. PROTECTION

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Storage, Packing and Shipping

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Agent of Allied Van Lines, Inc.

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AND POST STORAGE, INC.

LOCAL & LONG DISTANCE MOVING
MANUFACTURERS' DISTRIBUTORS
HEAVY HAULING & RIGGING
HOUSEHOLD GOODS STORAGE
PACKING, CRATING, SHIPPING

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THE QUACKENBUSH WAREHOUSE CO.

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DISTRIBUTION

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WA 7-0167

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Established 1921

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Collect for Quotation

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30% of the U. S. Population.

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• So. Williamsport

• P.R.R. Sidings

• Storage in Transit

• Warehousing—Distribution

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1911

1954

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Modern Concrete Warehouse. 100,000 Square Feet of Storage Space.
Private Tracks Connecting with All Railroad and Steamship Lines.
Motor Truck Service. Low Insurance Rates.

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AND FORWARDING CORPORATION

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Pool Car Distribution. Private rail sid-
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and Firms are Arranged Alphabetically

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Watchmen, U. S. Customs Bonded, Office space
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Division of
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ROCKY FORD MOVING & STORAGE

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Merchandise and Household Storage

Pool Car Distribution

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SAN ANTONIO, TEXAS

Gillis-Hood Terminal Warehouses, Inc.

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P. O. BOX 4418, STA. A

Merchandise Storage and Distribution

Private Siding. Free Switching

Member of SWA

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Merchandise

MERCHANTS TRANSFER & STORAGE CO.

Household Goods

Merchants & Transfer Sts., San Antonio 6

Complete Storage and Distribution Service

Over 50 years of satisfactory service

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San Antonio 7

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MEMBER

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FIREPROOF CONSTRUCTION

BONDED STORAGE



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WEA Bond 5-2367

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OGDEN, UTAH

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WESTERN GATEWAY STORAGE CO.

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POOL CAR DISTRIBUTION

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Fireproof

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HOUSEHOLD GOODS stored, packed and shipped. Motor van service to all states.



- 810,000 cu. ft. storage space
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Capacity 500 Cars
Private RR Siding
Automatic Sprinkler
Accurate Accounting



We make a specialty of Storage and Pool Car Distribution for Agents, Brokers and General Merchandise Houses.

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Highest financial rating; new fireproof, A.D.T. sprinklered buildings; lowest insurance rate (10.2c); modern equipment.

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Seattle's One-Stop Warehousing Service

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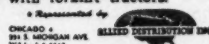
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Specialize in serving food and related industries; pool car distribution. 44 trucks and tractors with semi-trailers. New 49,000 ft. modern warehouse, equipped with forklift tractors.



Terminal Design . . .

(Continued from Page 89)

spotlight trailer loading and unloading.

The possibility of offering warehouse space as an additional customer service can be realized after the dock length has been decided on.

An extra length is built onto the dock to serve future expansion needs, and to serve as a temporary warehouse until that expansion is needed.

Following is a suggested table of dimensions and clearances for the open type motor carrier dock:

1. Clearance between curb, wall, or fence for shifting and backing vehicles—100 ft for 5-ft road units; 60 ft for 30-ft city trailers, and 50 ft for 25-ft city trucks.

2. Clearance under canopy or marquee, 13 to 15 ft; width of canopy or marquee, 6 to 14 ft; platform door height, 8 ft; width of stair, 24 to 36

in.; clearance between steps and first door opening, minimum of 12 in.

3. Width of single doors, 8 to 10 ft; space between single doors, 2 to 4 ft; center to center distance between single doors, 12 ft; space between double doors, 2 ft; width of double doors, 22 ft; center to center distance between double doors, 24 ft.

4. Clearance on platform under pipes, lights, and building framing for 2-wheel hand truck, fork truck, 4-wheel hand cart, or dragline operation, 12 ft.

5. Width of enclosed dock for 2-wheel hand truck operation, 50 ft; fork truck operation, 60 ft; 4-wheel hand cart operation, 70 ft; dragline operation, 80 ft.

6. Width of aisle for 2-wheel hand truck, 6 ft; fork truck, 4-wheel hand cart, and dragline, 10 ft.

Where different than for open type dock, suggested standards for closed type docks include:

1. Clearance, outside building, including street width, for shifting and backing vehicles—50 ft for 50-ft road units; 30 ft for 30 ft city trailers; 25 ft for 25-ft city trucks.

2. Width of parking area in buildings—55 ft for 50-ft road units; 35 ft for 30-ft city trailers; 30 ft for 25-ft city trucks. Platform overhead clearance at dock edge, 8 to 10 ft.

3. Width of outside single doors, 11 ft; space between outside single doors, 1 ft; center distance between outside single doors, 12 ft; space between outside double doors, 1 ft; width of outside double doors, 23 ft; center distance between outside double doors, 24 ft.

4. Clearance between columns and edge of platform, 3 to 4 in.; space between end of platform and first column, 27 ft (with stairs), 25 ft (without stairs); center distance of columns, 24 ft. •

(Resume Reading on Page 26)

DISTRIBUTION AGE